CHAPTER 22

Developing Countries: Growth, Crisis, and Reform

Until now, we have studied macroeconomic interactions between industrialized market economies like those of the United States and Western Europe. Richly endowed with capital and skilled labor, these politically stable countries generate high levels of income for their residents. And their markets, compared to those of some poorer countries, have long been relatively free of direct government control.

Several times since the 1980s, however, the macroeconomic problems of the world's developing countries have been at the forefront of concerns about the stability of the entire international economy. Over the decades following World War II, trade between developing and industrial nations has expanded, as has developing-country borrowing from richer lands. In turn, the more extensive links between the two groups of economies have made each group more dependent than before on the economic health of the other. Events in developing countries therefore have a significant impact on welfare and policies in more advanced economies. Since the 1960s, some countries that once were poor have increased their living standards dramatically, while many of them have fallen even further behind the industrial world. By understanding these contrasting development experiences, we can derive important policy lessons that can spur economic growth in all countries.

This chapter studies the macroeconomic problems of developing countries and the repercussions of those problems on the developed world. Although the insights from international macroeconomics that we gained in previous chapters also apply to developing countries, the distinctive problems those countries have faced in their quest to catch up to the rich economies warrant separate discussion. In addition, the lower income levels of developing areas make macroeconomic slumps there even more painful than in developed economies, with consequences that can threaten political and social cohesion.

LEARNING GOALS

After reading this chapter, you will be able to:

- Describe the persistently unequal world distribution of income and the evidence on its causes.
- Summarize the major economic features of developing countries.
- Explain the position of developing countries in the world capital market and the problem of default by developing borrowers.
- Recount the recent history of developing-country currency crises and financial crises.
- Discuss proposed measures to enhance poorer countries' gains from participation in the world capital market.

Income, Wealth, and Growth in the World Economy

Poverty is the basic problem that developing countries face, and escaping from poverty is their overriding economic and political challenge. Compared with industrialized economies, most developing countries are poor in the factors of production essential to modern industry: capital and skilled labor. The relative scarcity of these factors contributes to low levels of per capita income and often prevents developing countries from realizing the economies of scale from which many richer nations benefit. But factor scarcity is largely a symptom of deeper problems. Political instability, insecure property rights, and misguided economic policies frequently have discouraged investment in capital and skills, while also reducing economic efficiency in other ways.

The Gap Between Rich and Poor

The world's economies can be divided into four main categories according to their annual per capita income levels: low-income economies (including Afghanistan, Bangladesh, Nepal, Cambodia, and Haiti, along with parts of sub-Saharan Africa); lower middle-income economies (including China, India, Pakistan, the Philippines, Indonesia, several Middle Eastern countries, many Latin American and Caribbean countries, many former Soviet countries, and most of the remaining African countries); upper middle-income economies (including the remaining Latin American countries, a handful of African countries, a number of Caribbean countries, Turkey, Malaysia, Poland, Latvia, Lithuania, and Russia); and high-income economies (including the rich industrial market economies; the remaining Caribbean countries; a handful of exceptionally fortunate former developing countries such as Israel, Korea, and Singapore; oil-rich Kuwait and Saudi Arabia; and some successfully transitioned Eastern European countries such as the Czech and Slovak Republics, Hungary, and Estonia). The first three categories consist mainly of countries at a backward stage of development relative to industrial economies. Table 22-1 shows 2008 average per capita annual income levels for these country groups, together with another indicator of economic well-being, average life expectancy at birth.

Table 22-1 illustrates the sharp disparities in international income levels close to the start of the 21st century. Average national income per capita in the richest economies is 76 times that of the average in the poorest developing countries! Even the upper middle-income countries enjoy only about one-fifth of the per capita income of the industrial

TABLE 22-1 Indicators of Economic Welfare in Four Groups of Countries, 2008

Income Group	GDP Per Capita (2008 U.S. dollars)	Life Expectancy (years)*
Low-income	523	60
Lower middle-income	2,073	70
Upper middle-income	7,852	75
High-income	39,688	83

*Simple average of male and female life expectancies.

Source: World Bank.

group. The life expectancy figures generally reflect international differences in income levels. Average life spans fall as relative poverty increases.[1]

Has the World Income Gap Narrowed Over Time?

Explaining the income differences among countries is one of the oldest goals of economics. It is no accident that Adam Smith's classic 1776 book was entitled the *Wealth of Nations.* Since at least the days of the mercantilists, economists have sought not only to explain why countries' incomes differ at a given point in time, but also to solve the more challenging puzzle of why some countries become rich while others stagnate. Debate over the best policies for promoting economic growth has been fierce, as we shall see in this chapter.

Both the depth of the economic growth puzzle and the payoff to finding growth-friendly policies are illustrated in Table 22-2, which shows per capita output *growth rates* for several country groups between 1960 and 2007. (These real output data have been corrected to account for departures from purchasing power parity.) Over that period, the United States grew at roughly the 2 to 2.5 percent annual per capita rate that many economists would argue is the long-run maximum for a mature economy. The industrial countries that were most prosperous in 1960 generally grew at mutually comparable rates. As a result, their income gaps compared to the United States changed relatively little. The poorest industrialized countries as of 1960, however, often grew much more quickly than the United States on average, and as a result, their per capita incomes tended to catch up to that of the United States. For example, Ireland, which had been 54 percent poorer than the United States in 1960, was only 3 percent poorer in 2007—thereby having virtually erased the earlier income gap.

Ireland's catching-up process illustrates the tendency for differences among *industrial* countries' living standards to narrow over the postwar era. The theory behind this observed **convergence** in per capita incomes is deceptively simple. If trade is free, if capital can move to countries offering the highest returns, and if knowledge itself moves across political borders so that countries always have access to cutting-edge production technologies, then there is no reason for international income gaps to persist for long. Some gaps do persist in reality because of policy differences across industrial countries; however, the preceding forces of

[1] Chapter 16 showed that an international comparison of *dollar* incomes portrays relative welfare levels inaccurately because countries' price levels measured in a common currency (here, U.S. dollars) generally differ. The World Bank supplies national income numbers that have been adjusted to take account of deviations from purchasing power parity (PPP). Those numbers greatly reduce, but do not eliminate, the disparities in Table 22-1. Table 22-2 reports some PPP-adjusted incomes.

TABLE 22-2 Output Per Capita in Selected Countries, 1960–2007 (in 2007 U.S. dollars)

Country	Output Per Capita 1960	2007	1960–2007 Annual Average Growth Rate (percent per year)
Industrialized in 1960			
Canada	12,441	36,020	2.3
France	9,419	29,542	2.5
Ireland	6,963	41,864	3.9
Italy	8,234	28,707	2.7
Japan	5,630	30,608	3.7
Spain	6,027	31,348	3.6
Sweden	11,845	32,611	2.2
United Kingdom	11,634	31,970	2.2
United States	15,941	43,111	2.1
Africa			
Kenya	1,722	2,117	0.4
Nigeria	1,947	2,230	0.3
Senegal	2,135	1,922	−0.2
Zimbabwe	1,472	1,924	0.6
Latin America			
Argentina	8,824	15,323	1.2
Brazil	3,138	9,683	2.4
Chile	5,729	18,375	2.5
Colombia	3,189	7,926	2.0
Mexico	4,433	11,192	2.0
Paraguay	2,569	4,764	1.3
Peru	3,617	6,398	1.2
Venezuela	8,608	12,431	0.8
Asia			
China	703	7,853	5.3
Hong Kong	3,655	42,803	5.4
India	998	3,880	2.9
Malaysia	2,171	17,904	4.6
Singapore	4,000	43,591	5.2
South Korea	2,094	23,973	5.3
Taiwan	1,720	26,969	6.0
Thailand	1,192	9,402	4.5

Note: Data are taken from the Penn World Table, Version 6.3, and use PPP exchange rates to compare national incomes. For a description, see Alan Heston, Robert Summers, and Bettina Aten, Penn World Table Version 6.2, Center for International Comparisons of Production, Income, and Prices at the University of Pennsylvania, August 2009.

convergence seem to be strong enough to keep industrial-country incomes roughly in the same ballpark. Remember, too, that differences in output *per capita* may overstate differences in output *per employed worker* because most industrial countries have higher unemployment rates and lower labor-force participation rates than the United States.

Despite the appeal of a simple convergence theory, no clear tendency for per capita incomes to converge characterizes the world as a whole, as the rest of Table 22-2 shows. There we see vast discrepancies in long-term growth rates among different regional country groupings, but no general tendency for poorer countries to grow faster. Several countries in sub-Saharan Africa, although at the bottom of the world income scale, have grown (for most of the postwar years) at rates far below those of the main industrial countries.[2] Growth has also been relatively slow in Latin America, where only a few countries (notably Brazil and Chile) have surpassed the growth rate of the United States, despite lower income levels.

In contrast, East Asian countries *have* tended to grow at rates far above those of the industrialized world, as the convergence theory would predict. South Korea, with an income level below Senegal's in 1960, has grown at better than 5 percent per year (in per capita terms) since then and in 1997 was classified as a high-income developing country by the World Bank. Singapore's 5.2 percent annual average growth rate likewise propelled it to high-income status. Some of the Eastern European countries that lived under Soviet rule until 1989 have also graduated rapidly to the upper income brackets.

A country that can muster even a 3 percent annual growth rate will see its real per capita income double every generation. But at the growth rates seen in East Asian countries such as Hong Kong, Singapore, South Korea, and Taiwan, per capita real income increases *fivefold* every generation!

What explains the sharply divergent long-run growth patterns in Table 22-2? The answer lies in the economic and political features of developing countries and the ways these have changed over time in response to both world events and internal pressures. The structural features of developing countries have also helped to determine their success in pursuing key macroeconomic goals other than rapid growth, such as low inflation, low unemployment, and financial-sector stability.

Structural Features of Developing Countries

Developing countries differ widely among themselves these days, and no single list of "typical" features would accurately describe all developing countries. In the early 1960s, these countries were much more similar to each other in their approaches to trade policy, macroeconomic policy, and other government interventions in the economy. Then things began to change. East Asian countries abandoned import-substituting industrialization, embracing an export-oriented development strategy instead. This strategy proved very successful. Later on, countries in Latin America also reduced trade barriers while simultaneously attempting to rein in government's role in the economy, reduce chronically high inflation, and, in many cases, open capital accounts to private transactions. These efforts initially met with mixed success but increasingly are bearing fruit.

While many developing countries therefore have reformed their economies to come closer to the structures of the successful industrial economies, the process remains incomplete and most developing countries tend to be characterized by at least some of the following features:

1. There is a history of extensive direct government control of the economy, including restrictions on international trade, government ownership or control of large industrial firms, direct government control of internal financial transactions, and a high level of government consumption as a share of GNP. Developing countries differ widely

[2] On the other hand, other countries in sub-Saharan Africa have now reached upper middle-income status. Botswana in southern Africa did so early. The country enjoyed an average per capita growth rate well above 5 percent per year during the three decades after 1960.

among themselves in the extent to which the role of government in the economy has been reduced in these various areas over the past decades.

2. There is a history of high inflation. In many countries, the government was unable to pay for its heavy expenditures and the losses of state-owned enterprises through taxes alone. Tax evasion was rampant, and much economic activity was driven underground, so it proved easiest simply to print money. **Seigniorage** is the name economists give to the real resources a government earns when it prints money that it spends on goods and services. When their governments were expanding money supplies continually to extract high levels of seigniorage, developing countries experienced inflation and even hyperinflation. (See, for example, the discussion of inflation and money supply growth in Latin America in Chapter 15, page 371.)

3. Where domestic financial markets have been liberalized, weak credit institutions often abound. Banks frequently lend funds they have borrowed to finance poor or very risky projects. Loans may be made on the basis of personal connections rather than prospective returns, and government safeguards against financial fragility, such as bank supervision (Chapter 21), tend to be ineffective due to incompetence, inexperience, and outright fraud. While public trade in stock shares has developed in many emerging markets, it is usually harder in developing countries for shareholders to find out how a firm's money is being spent or to control firm managers. The legal framework for resolving asset ownership in cases of bankruptcy typically is also weak. Notwithstanding the recent instability in advanced-country financial markets, it is still true that by comparison, developing countries' financial markets remain less effective in directing savings toward their most efficient investment uses. As a result, developing countries remain even more prone to crisis.

4. Where exchange rates are not pegged outright (as in China), they tend to be managed more heavily by developing-country governments. Government measures to limit exchange rate flexibility reflect both a desire to keep inflation under control and the fear that floating exchange rates would be subject to huge volatility in the relatively thin markets for developing-country currencies. There is a history of allocating foreign exchange through government decree rather than through the market, a practice (called *exchange control*) that some developing countries still maintain. Most developing countries have, in particular, tried to control capital movements by limiting foreign exchange transactions connected with trade in assets. More recently, however, many emerging markets have opened their capital accounts.

5. Natural resources or agricultural commodities make up an important share of exports for many developing countries—for example, Russian petroleum, Malaysian timber, South African gold, and Colombian coffee.

6. Attempts to circumvent government controls, taxes, and regulations have helped to make corrupt practices such as bribery and extortion a way of life in many if not most developing countries. Even though the development of underground economic activity has in some instances aided economic efficiency by restoring a degree of market-based resource allocation, on balance it is clear from the data that corruption and poverty go hand in hand.

For a large sample of developing and industrial countries, Figure 22-1 shows the strong positive relationship between annual real per capita output and an inverse index of corruption—ranging from 1 (most corrupt) to 10 (cleanest)—published by the organization Transparency International.[3] Several factors underlie this strong positive

[3] According to Transparency International's 2008 rankings, the cleanest countries in the world were Denmark, Sweden, and New Zealand (all scoring a high 9.3), and the most corrupt were Myanmar and Somalia (both scoring a dismal 1.0). The score for the United States was 7.3. For detailed data and a general overview of the economics of corruption, see Vito Tanzi, "Corruption around the World," *International Monetary Fund Staff Papers* 45 (December 1998), pp. 559–594.

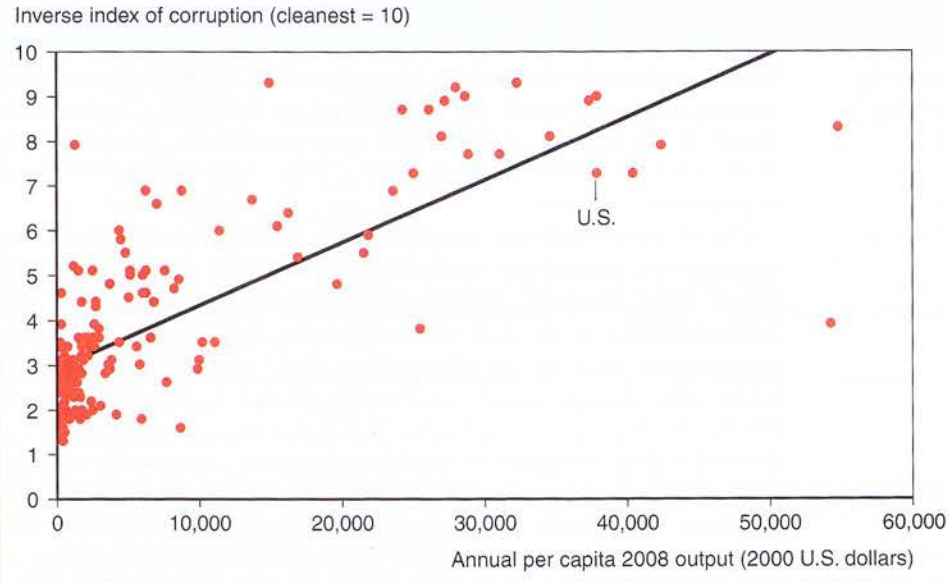


Figure 22-1

Corruption and Per Capita Income

Corruption tends to rise as real per capita income falls.

Note: The figure plots 2008 values of an (inverse) index of corruption and 2008 values of PPP-adjusted real per capita output, measured in 2000 U.S. dollars (the amount a dollar could buy in the United States in 2000). The straight line represents a statistician's best guess of a country's corruption level based on its real per-capita output.

Source: Transparency International, Corruption Perception Index; World Bank, *World Development Indicators*.

relationship. Government regulations that promote corruption also harm economic prosperity. Statistical studies have found that corruption itself tends to have net negative effects on economic efficiency and growth.[4] Finally, poorer countries lack the resources to police corruption effectively, and poverty itself breeds a greater willingness to go around the rules.

Many of the broad features that still characterize developing countries today took shape in the 1930s and can be traced to the Great Depression (Chapter 19). Most developing countries experimented with direct controls over trade and payments to conserve

[4] There is, of course, abundant anecdotal evidence on the economic inefficiencies associated with corruption. Consider the following description from 1999 of doing business in Brazil, which had a 2008 Transparency International ranking of 3.5:

> Corruption goes well beyond shaking down street sellers. Almost every conceivable economic activity is subject to some form of official extortion.
>
> Big Brazilian companies generally agree to pay bribes, but multinationals usually refuse and prefer to pay fines. The money—paid at municipal, state and federal levels—is shared out between bureaucrats and their political godfathers. They make sure that it is impossible to comply fully with all of Brazil's tangle of laws, regulations, decrees and directives.
>
> The bribes and fines make up part of the Brazil Cost, shorthand for the multitude of expenses that inflate the cost of conducting business in Brazil.

See "Death, Decay in São Paulo May Stir Reformist Zeal," *Financial Times*, March 20/21, 1999, p. 4.

foreign exchange reserves and safeguard domestic employment. Faced with a massive breakdown of the world market system, industrial and developing countries alike allowed their governments to assume increasingly direct roles in employment and production. Often, governments reorganized labor markets, established stricter control over financial markets, controlled prices, and nationalized key industries. The trend toward government control of the economy proved much more persistent in developing countries, however, where political institutions allowed those with vested financial interests in the status quo to perpetuate it.

Cut off from traditional suppliers of manufactures during World War II, developing countries encouraged new manufacturing industries of their own. Political pressure to protect these industries was one factor behind the popularity of import-substituting industrialization in the first postwar decades. In addition, colonial areas that gained independence after the war believed they could attain the income levels of their former rulers only through rapid, government-directed industrialization and urbanization. Finally, developing-country leaders feared that their efforts to escape poverty would be doomed if they continued to specialize in primary-commodity exports such as coffee, copper, and wheat. In the 1950s, some influential economists argued that developing countries would suffer continually declining terms of trade unless they used commercial policy to move resources out of primary exports and into import substitutes. These forecasts turned out to be wrong, but they did influence developing countries' policies in the first postwar decades.

Developing-Country Borrowing and Debt

One further feature of developing countries is crucial to understanding their macroeconomic problems: Many rely heavily on financial inflows from abroad to finance domestic investment. Before World War I and in the period up to the Great Depression, developing countries (including the United States for much of the 19th century) received large financial inflows from richer lands. In the decades after World War II, developing economies again tapped the savings of richer countries and built up a substantial debt to the rest of the world (around $5 trillion in gross terms at the end of 2010). That debt was at the center of several international lending crises that preoccupied economic policy makers throughout the world in the last two decades of the 20th century.

The Economics of Financial Inflows to Developing Countries

As stated above, many developing countries have received extensive financial inflows from abroad and now carry substantial debts to foreigners. Table 22-3 shows the recent pattern of borrowing by non–oil developing countries (see the second column of data). What factors lie behind financial inflows to the developing world?

Recall the identity (analyzed in Chapter 13) that links national saving, S, domestic investment, I, and the current account balance, CA : $S-I = CA$. If national saving falls short of domestic investment, the difference equals the current account deficit. Because of poverty and poor financial institutions, national saving often is low in developing countries. Because these same countries are relatively poor in capital, however, the opportunities for profitably introducing or expanding plant and equipment can be abundant. Such opportunities justify a high level of investment. By running a deficit in its current account, a country can obtain resources from abroad to invest even if its domestic saving level is low. However, a deficit in the current account implies that the country is borrowing abroad. In return for being able to import more foreign goods today than its current exports can pay for, the country must promise to repay in the

TABLE 22-3 Cumulative Current Account Balances of Major Oil Exporters, Other Developing Countries, and Advanced Countries, 1973–2009 (billions of dollars)

	Major Oil Exporters	Other Developing Countries	Advanced Countries
1973–1981	363.8	–410.0	7.3
1982–1989	–135.3	–159.2	–361.1
1990–1998	–106.1	–684.2	51.1
1999–2009	2,647.9	984.7	–3,134.7

Source: International Monetary Fund, *World Economic Outlook*, various issues and online database. Global current accounts generally do not sum to zero because of errors, omissions, and the exclusion of some countries. Numbers for 1999–2009 are authors' estimates based on the preceding sources.

future either the interest and principal on loans or the dividends on shares in firms sold to foreigners.

Thus, much developing-country borrowing could potentially be explained by the incentives for *intertemporal trade* examined in Chapter 6. Low-income countries generate too little saving of their own to take advantage of all their profitable investment opportunities, so they must borrow abroad. In capital-rich countries, on the other hand, many productive investment opportunities have been exploited already but saving levels are relatively high. Savers in developed countries can earn higher rates of return, however, by lending to finance investments in the developing world.

Notice that when developing countries borrow to undertake productive investments that they would not otherwise be able to carry out, both they and the lenders reap gains from trade. Borrowers gain because they can build up their capital stocks despite limited national savings. Lenders simultaneously gain because they earn higher returns to their savings than they could earn at home.

While the reasoning above provides a rationale for developing countries' external deficits and debt, it does not imply that all loans from developed to developing countries are justified. Loans that finance unprofitable investments—for example, huge shopping malls that are never occupied—or imports of consumption goods may result in debts that borrowers cannot repay. In addition, faulty government policies that artificially depress national saving rates may lead to excessive foreign borrowing. The 1982–1989 fall in developing-country borrowing evident in Table 22-3 is associated with difficulties that some poorer countries had in keeping up their payments to creditors.

A surprising development starting in the early 2000s was that developing countries ran surpluses, a counterpart of richer countries' deficits (mainly that of the United States). We discussed this pattern of global imbalances in Chapter 19 (pages 538–544). One reason for these surpluses was developing countries' strong desire to accumulate international reserves, as we discuss in the box on page 637.

The Problem of Default

Potential gains from international borrowing and lending will not be realized unless lenders are confident they will be repaid. A loan is said to be in **default** when the borrower, without the agreement of the lender, fails to repay on schedule according to the loan contract. Both social and political instability in developing countries, as well as the frequent weaknesses in their public finances and financial institutions, make it much more risky to lend to developing than to industrial countries. And indeed, the history of financial

flows to developing countries is strewn with the wreckage of financial crises and defaulted loan contracts:

1. In the early 19th century, a number of American states defaulted on the European loans they had taken out to finance the building of canals.
2. Throughout the 19th century, Latin American countries ran into repayment problems. This was particularly true of Argentina, which sparked a global financial crisis in 1890 (the Baring Crisis) when it proved unable to meet its obligations.
3. In 1917, the new communist government of Russia repudiated the foreign debts that had been incurred by previous rulers. The communists closed the Soviet economy to the rest of the world and embarked on a program of centrally planned economic development that was often ruthlessly enforced.
4. During the Great Depression of the 1930s, world economic activity collapsed and developing countries found themselves shut out of industrial-country export markets by a wall of protection (recall Chapter 19). Nearly every developing country defaulted on its external debts as a result, and private financial flows to developing countries dried up for four decades. Even some industrial countries, such as Nazi Germany, defaulted.
5. A number of developing countries have defaulted in recent decades. For example, in 2005, after lengthy negotiations, most of Argentina's private creditors agreed to settle for only about a third of the contractual values of their claims on the country.

Sharp contractions in a country's output and employment invariably occur after a *sudden stop* in which the country suddenly loses access to all foreign sources of funds (recall Chapter 19). At a very basic level, the necessity for such contractions can be seen from the current account identity, $S-I = CA$. Imagine that a country is running a current account deficit that is 5 percent of its initial GNP, when suddenly foreign lenders become fearful of default and cut off all new loans. Since this action forces the current account balance to be at least zero ($CA \geq 0$), the identity $S-I = CA$. tells us that through some combination of a fall in investment or a rise in saving, $S-I$ must immediately rise by at least 5 percent. The required sharp fall in aggregate demand necessarily depresses the country's output dramatically. Even if the country were not on the verge of default initially—imagine that foreign lenders were originally seized by a sudden irrational panic—the harsh contraction in output that the country would suffer would make default a real possibility.

Indeed, matters are likely to be even worse for the country than the preceding example suggests. Foreign lenders will not only withhold new loans if they fear default, they will naturally also try to get as much money out of the country as possible by demanding the *full* repayment on any loans for which principal can be demanded on short notice (for example, liquid short-term bank deposits). When the developing country repays the principal on debt, it is increasing its *net* foreign wealth. To generate the corresponding positive current account item (see Chapter 13), the country must somehow raise its net exports. Thus, in a sudden stop crisis, the country will not only have to run a current account of zero, it will also actually be called upon to run a *surplus* ($CA > 0$), The bigger the country's *short-term* foreign debt—debt whose principal can be demanded by creditors—the larger the rise in saving or compression of investment that will be needed to avoid a default. You already may have noticed that developing-country sudden stops and default crises can be driven by a self-fulfilling mechanism analogous to the ones behind self-fulfilling balance of payments crises (Chapter 18) and bank runs (Chapter 21). Indeed, the underlying logic is the same. Furthermore, default crises in developing countries are likely to be accompanied by balance of payments crises (when the exchange rate is pegged) *and* bank runs. A balance of payments crisis results because the country's official foreign exchange reserves may be the only

ready means it has to pay off foreign short-term debts. By running down its official reserves, the government can cushion aggregate demand by reducing the size of the current account surplus needed to meet creditors' demands for repayment.[5] But the loss of its reserves leaves the government unable to peg the exchange rate any longer. At the same time, the banks get in trouble as domestic and foreign depositors, fearing currency depreciation and the consequences of default, withdraw funds and purchase foreign reserves in the hope of repaying foreign-currency debts or sending wealth safely abroad. Since the banks are often weak to begin with, the large-scale withdrawals quickly push them to the brink of failure.

Because each of these crisis "triplets" reinforces the others, a developing country's financial crisis is likely to be severe, to have widespread negative effects on the economy, and to snowball very quickly. The immediate origin of such a pervasive economic collapse can be in the financial account (as in a sudden stop), in the foreign exchange market, or in the banking system, depending on the situation of the particular country.

When a government defaults on its obligations, the event is called a *sovereign* default. A conceptually different situation occurs when a large number of *private* domestic borrowers cannot pay their debts to foreigners. In practice in developing countries, however, the two types of default go together. The government may bail out the private sector by taking on its foreign debts, thus hoping to avoid widespread economic collapse. In addition, a government in trouble may provoke private defaults by limiting domestic residents' access to its dwindling foreign exchange reserves. That action makes it much harder to pay foreign currency debts. In either case, the government becomes closely involved in the subsequent negotiations with foreign creditors.

Default crises were rare in the first three decades after World War II: Debt issue by developing countries was limited, and the lenders typically were governments or official international agencies such as the International Monetary Fund (IMF) and World Bank. As the free flow of private global capital expanded after the early 1970s, however, major default crises occurred repeatedly (as we shall see), leading many to question the stability of the world capital market.[6]

Alternative Forms of Financial Inflow

When a developing country has a current account deficit, it is selling assets to foreigners to finance the difference between its spending and its income. Although we have lumped these asset sales together under the catchall term *borrowing*, the financial inflows that finance developing countries' deficits (and, indeed, any country's deficit) can take several forms. Different types of financial inflows have predominated in different historical periods. Because different obligations to foreign lenders result, an understanding of the

[5] Make certain you understand why this is so. If necessary, review the open-economy accounting concepts from Chapter 13. For a statistical analysis of the relationship between currency crises and banking crises, see Graciela L. Kaminsky and Carmen M. Reinhart, "The Twin Crises: The Causes of Banking and Balance of Payments Problems," *American Economic Review* 89 (June 1999), pp. 473–500.

[6] On the history of default through the mid-1980s, see Peter H. Lindert and Peter J. Morton, "How Sovereign Debt Has Worked," in Jeffrey D. Sachs, ed., *Developing Country Debt and Economic Performance*, Vol. 1 (Chicago: University of Chicago Press, 1989). A good overview of private capital inflows to developing countries over the same period is given by Eliana A. Cardoso and Rudiger Dornbusch, "Foreign Private Capital Inflows," in Hollis Chenery and T. N. Srinivasan, eds., *Handbook of Development Economics*, Vol. 2 (Amsterdam: Elsevier Science Publishers, 1989). A more recent overview of default crises is in Atish Ghosh et al., *IMF-Supported Programs in Capital Account Crises*, Occasional Paper 210 (Washington, D.C.: International Monetary Fund, 2002). For a comprehensive historical survey, see Carmen Reinhart and Kenneth Rogoff, *This Time Is Different: Eight Centuries of Financial Folly* (Princeton, NJ: Princeton University Press, 2009). Reinhart and Rogoff document that for developing countries, default crises can occur at comparatively low levels of external debt relative to output.

macroeconomic scene in developing countries requires a careful analysis of the five major channels through which these countries have financed their external deficits.

1. *Bond finance.* Developing countries have sometimes sold bonds to private foreign citizens to finance their deficits. Bond finance was dominant in the period up to 1914 and in the interwar years (1918–1939). It regained popularity after 1990 as many developing countries tried to liberalize and modernize their financial markets.
2. *Bank finance.* Between the early 1970s and late 1980s, developing countries borrowed extensively from commercial banks in the advanced economies. In 1970, roughly a quarter of developing-country external finance was provided by banks. In 1981, banks provided an amount of finance roughly equal to the non–oil developing countries' aggregate current account deficit for that year. Banks still lend directly to developing countries, but in the 1990s the importance of bank lending shrank.
3. *Official lending.* Developing countries sometimes borrow from official foreign agencies such as the World Bank or the Inter-American Development Bank. Such loans can be made on a "concessional" basis, that is, at interest rates below market levels, or on a market basis, which allows the lender to earn the market rate of return. Over the post-World War II period, official lending flows to developing nations have shrunk relative to total flows but remain dominant for some countries, for example, most of those in sub-Saharan Africa.
4. *Foreign direct investment.* In foreign direct investment, a firm largely owned by foreign residents acquires or expands a subsidiary firm or factory located in the host developing country (Chapter 8). A loan from IBM to its assembly plant in Mexico, for example, would be a direct investment by the United States in Mexico. The transaction would enter Mexico's balance of payments accounts as a financial asset sale (and the U.S. balance of payments accounts as an equal financial asset acquisition). Since World War II, foreign direct investment has been a consistently important source of developing-country capital.
5. *Portfolio investment in ownership of firms.* Since the early 1990s, investors in developed countries have shown an increased appetite for purchasing shares of stock in developing countries' firms. The trend has been reinforced by many developing countries' efforts at **privatization**—that is, selling to private owners large state-owned enterprises in key areas such as electricity, telecommunications, and petroleum. In the United States, numerous investment companies offer mutual funds specializing in emerging market shares.

The five types of finance just described can be classified into two categories: *debt* finance and *equity* finance (Chapter 21). Bond, bank, and official finance are all forms of debt finance. In this case, the debtor must repay the face value of the loan, plus interest, regardless of its own economic circumstances. Direct investment and portfolio purchases of stock shares are, on the other hand, forms of equity finance. Foreign owners of a direct investment, for example, have a claim to a share of the investment's net return, not a claim to a fixed stream of money payments. Adverse economic events in the host country thus result in an automatic fall in the earnings of direct investments and in the dividends paid to foreigners.

The distinction between debt and equity finance is useful in analyzing how developing-country payments to foreigners adjust to unforeseen events such as recessions or terms of trade changes. When a country's liabilities are in the form of debt, its scheduled payments to creditors do not fall even if its real income falls. It may then become very painful for the country to continue honoring its foreign obligations—painful enough to cause the country to default. Life often is easier, however, with equity finance. In the case of equity, a fall in

domestic income automatically reduces the earnings of foreign shareholders without violating any loan agreement. By acquiring equity, foreigners have effectively agreed to share in both the bad and the good times of the economy. Equity rather than debt financing of its investments therefore leaves a developing country much less vulnerable to the risk of a foreign lending crisis.

The Problem of "Original Sin"

When developing countries incur debts to foreigners, those debts are overwhelmingly denominated in terms of a major foreign currency—the U.S. dollar, the euro, or the yen. This practice is not a matter of choice. In general, lenders from richer countries, fearing the extreme devaluation and inflation that have occurred so often in the past, insist that poorer countries promise to repay them in the lenders' own currencies.

In contrast, richer countries typically can borrow in terms of their own currencies. Thus, the United States borrows dollars from foreigners, Britain borrows pounds sterling, Japan borrows yen, and Switzerland borrows Swiss francs.

For these richer countries, the ability to denominate their foreign debts in their own currencies, while holding foreign assets denominated in foreign currencies, is a considerable advantage. For example, suppose a fall in world demand for U.S. products leads to a dollar depreciation. We saw in Chapter 19 how such a depreciation can cushion output and employment in the United States. The U.S. portfolio of foreign assets and liabilities, in fact, yields a further cushioning advantage: Because U.S. assets are mostly denominated in foreign currencies, the dollar value of those assets *rises* when the dollar depreciates against foreign currencies. At the same time, because U.S. foreign liabilities are predominantly (about 95 percent) in dollars, their dollar value rises very little. So a fall in world demand for U.S. goods leads to a substantial wealth transfer from foreigners to the United States—a kind of international insurance payment.

For poor countries that must borrow in a major foreign currency, a fall in export demand has the opposite effect. Because poorer countries tend to be net debtors in the major foreign currencies, a depreciation of domestic currency causes a transfer of wealth to foreigners by *raising* the domestic currency value of the net foreign debt. This amounts to negative insurance!

A country that can borrow abroad in its own currency can reduce the real resources it owes to foreigners, without triggering a default, simply by depreciating its currency. A developing country forced to borrow in foreign currency lacks this option, and can reduce what it owes to foreigners only through some form of default.[7]

Economists Barry Eichengreen of the University of California–Berkeley and Ricardo Hausmann of Harvard University coined the phrase **original sin** to describe developing countries' inability to borrow in their own currencies.[8] In these economists' view, that inability of poor countries is a structural problem caused primarily by features of the global capital market—such as the limited additional diversification potential that a small country's currency provides to creditors from rich countries, who already hold all the major currencies in their portfolios. Other economists believe that the "sin" of developing

[7] The financial crisis of 2007–2009 raised the prospect that even some high-income countries, Greece being the leading possibility, could default on foreign debts. (Recall our discussion in Chapter 20 of the euro zone debt crisis of 2010.) Euro zone countries face a unique constraint compared to other high-income countries, however. Because monetary policy is controlled by the ECB, a single euro zone government cannot choose to devalue its debts legally through depreciation of the domestic currency.

[8] See their paper "Exchange Rates and Financial Fragility" in *New Challenges for Monetary Policy* (Kansas City, MO: Federal Reserve Bank of Kansas City, 1999), pp. 329–368.

countries is not particularly "original" but instead derives from their own histories of ill-advised economic policies. The debate is far from settled, but whatever the truth, it is clear that because of original sin, debt finance in international markets is more problematic for developing than for developed economies.

A related but distinct phenomenon is the large scale of private, *internal* borrowing in dollars or other major foreign currencies in many developing countries. As a result, foreign currency debtors may find themselves in considerable difficulty when the domestic currency depreciates.[9]

The Debt Crisis of the 1980s

In 1981–1983, the world economy suffered a steep recession. Just as the Great Depression made it hard for developing countries to make payments on their foreign loans—quickly causing an almost universal default—the great recession of the early 1980s also sparked a crisis over developing-country debt.

Chapter 19 described how the U.S. Federal Reserve in 1979 adopted a tough anti-inflation policy that raised dollar interest rates and helped push the world economy into recession by 1981. The fall in industrial countries' aggregate demand had a direct negative impact on the developing countries, of course, but three other mechanisms were also important. Because the developing world had extensive adjustable-rate dollar-denominated debts (original sin in action), there was an immediate and spectacular rise in the interest burden that debtor countries had to carry. The problem was magnified by the dollar's sharp appreciation in the foreign exchange market, which raised the real value of the dollar debt burden substantially. Finally, primary commodity prices collapsed, depressing the terms of trade of many poor economies.

The crisis began in August 1982 when Mexico announced that its central bank had run out of foreign reserves and that it could no longer meet payments on its foreign debt. Seeing potential similarities between Mexico and other large Latin American debtors such as Argentina, Brazil, and Chile, banks in the industrial countries—the largest private lenders to Latin America at the time—scrambled to reduce their risks by cutting off new credits and demanding repayment on earlier loans.

The results were a widespread inability of developing countries to meet prior debt obligations and a rapid move to the edge of a generalized default. Latin America was perhaps hardest hit, but also hit were Soviet bloc countries like Poland that had borrowed from European banks. African countries, most of whose debts were to official agencies such as the IMF and World Bank, also fell behind on their debts. Most countries in East Asia were able to maintain economic growth and avoid rescheduling their debt (that is, stretching out repayments by promising to pay additional interest in the future). Nonetheless, by the end of 1986 more than 40 countries had encountered severe external financing problems. Growth had slowed sharply (or gone into reverse) in much of the developing world, and developing-country borrowing slowed dramatically. Initially, industrial countries, with heavy involvement by the International Monetary Fund, attempted to persuade the large banks to continue lending, arguing that a coordinated lending response was the best assurance that earlier debts would be repaid. Policy makers in the industrialized countries feared that banking giants like Citicorp and Bank of America, which had significant loans in Latin America, would fail in the event of a generalized default, thus dragging down the world financial system with them. (As you can see, there was more than one near miss on the road to the 2007–2009 financial meltdown!) But the crisis didn't end until 1989 when

[9] For insight into the reasons for foreign currency liability denomination, see the item by Rajan and Tokatlidis in Further Readings.

the United States, fearing political instability to its south, insisted that American banks give some form of debt relief to indebted developing countries. In 1990, banks agreed to reduce Mexico's debt by 12 percent, and within a year, debt-reduction agreements had also been negotiated by the Philippines, Costa Rica, Venezuela, Uruguay, and Niger. When Argentina and Brazil reached preliminary agreements with their creditors in 1992, it looked as if the debt crisis of the 1980s had finally been resolved.

Reforms, Capital Inflows, and the Return of Crisis

The early 1990s saw a renewal of private capital flows into developing countries, including some of the highly indebted Latin American countries at the center of the previous decade's debt crisis. As Table 22-3 shows, the foreign borrowing of non–oil-developing countries as a group expanded sharply.

Low interest rates in the United States in the early 1990s certainly provided an initial impetus to these renewed capital flows. Perhaps more important, however, were serious efforts in the recipient economies to stabilize inflation, a move requiring governments to limit their roles in the economy and raise tax revenues. At the same time, governments sought to lower trade barriers, to deregulate labor and product markets, and to improve the efficiency of financial markets. Widespread privatization served both the microeconomic goals of fostering efficiency and competition, and the macroeconomic goals of eliminating the government's need to cover the losses of sheltered and mismanaged state-owned firms.

What finally pushed countries to undertake serious reform despite the vested political interests favoring the status quo? One factor was the 1980s debt crisis itself, which resulted in what many commentators have called a "lost decade" of Latin American growth. Many of the relatively young policy makers who came to power in Latin America as the debt crisis ended were well-trained economists who believed that misguided economic policies and institutions had brought on the crisis and worsened its effects. Another factor was the example of East Asia, which had survived the 1980s debt crisis largely unscathed. Despite having been poorer than Latin America as recently as 1960, East Asia now was richer.

Recent economic reforms have taken different shapes in different Latin American countries, and some have made significant progress. Here we contrast the macroeconomic aspects of the approaches taken in four large countries that have made wide-ranging (though not equally successful) reform attempts.

Argentina Argentina suffered under military rule between 1976 and 1983, but the economy remained a shambles even after the return of democracy. Following years marked by banking crises, fiscal instability, and even hyperinflation, Argentina finally turned to radical institutional reform in the early 1990s. Import tariffs were slashed, government expenditures were cut, major state companies including the national airline were privatized, and tax reforms led to increased government revenues.

The most daring component of Argentina's program, however, was the new Convertibility Law of April 1991 making Argentina's currency fully convertible into U.S. dollars at a *fixed* rate of exactly one peso per dollar. The Convertibility Law also required that the monetary base be backed entirely by gold or foreign currency, so in one stroke it sharply curtailed the central bank's ability to finance government deficits through continuing money creation. Argentina's Convertibility Law represented an extreme version of the exchange rate–based approach to reducing inflation that had been tried many times in the past, but had typically ended in a currency crisis.

This time, the approach worked for nearly a decade. Backed as it was by genuine economic and political reforms, Argentina's plan had a dramatic effect on inflation, which remained low after dropping from 800 percent in 1990 to well under 5 percent by 1995.

However, continuing inflation in the first years of the convertibility plan, despite a fixed exchange rate, implied a steep real appreciation of the peso, about 30 percent from 1990 to 1995. The real appreciation led to unemployment and a growing current account deficit.

In the mid-1990s the peso's real appreciation process ended, but unemployment remained high because of rigidities in labor markets. Although by 1997 the economy was growing rapidly, growth subsequently turned negative and the government deficit once again swelled out of control. As the world economy slipped into recession in 2001, Argentina's foreign credit dried up. The country defaulted on its foreign debts in December 2001 and abandoned the peso/dollar peg in January 2002. The peso depreciated sharply and inflation soared once again. Argentine output fell by nearly 11 percent in 2002, although growth returned in 2003 as inflation fell. As of this writing, Argentina is trying to negotiate a settlement with holdout foreign creditors that will allow it to re-enter international capital markets as a borrower.

Brazil Like Argentina, Brazil suffered runaway inflation in the 1980s as well as multiple failed attempts at stabilization accompanied by currency reforms. The country took longer to get inflation under control, however, and approached its disinflation less systematically than the Argentines did.[10]

In 1994, the Brazilian government introduced a new currency, the real (pronounced ray-AL), pegged to the dollar. At the cost of widespread bank failures, Brazil defended the new exchange rate with high interest rates in 1995, then shifted to a fixed, upwardly crawling peg in the face of substantial real appreciation. Inflation dropped from an annual rate of 2,669 percent (in 1994) to under 10 percent in 1997.

Economic growth remained unimpressive, however. Although Brazil's government undertook a reduction in import barriers, privatization, and fiscal retrenchment, the country's overall progress on economic reform was much slower than in the case of Argentina, and the government's fiscal deficit remained worryingly high. A good part of the problem was the very high interest rate the government had to pay on its debt, a rate that reflected skepticism in markets that the limited upward crawl of the real against the dollar could be maintained.

Finally, in January 1999, Brazil devalued the real by 8 percent and then allowed it to float. Very quickly, the real lost 40 percent of its value against the dollar. Recession followed as the government struggled to prevent the real from going into a free fall. But the recession proved short-lived, inflation did not take off, and (because Brazil's financial institutions had avoided heavy borrowing in dollars), financial-sector collapse was avoided. Brazil elected a populist president, Ignacio Lula da Silva, in October 2002, but the market-friendly policies he ultimately (and rather unexpectedly) adopted have preserved Brazil's access to international credit markets. Economic growth has been healthy and Brazil has become a power in the emerging world. A key factor in Brazil's success has been its strong commodity exports, notably to China.

Chile Having learned the lessons of deep unemployment and financial collapse at the start of the 1980s, Chile implemented more consistent reforms later in the decade. Very importantly, the country instituted a tough regulatory environment for domestic financial institutions and removed an explicit bailout guarantee that had helped to worsen Chile's earlier debt crisis. A crawling peg–type of exchange rate regime was used to bring inflation down gradually, but the system was operated flexibly to avoid extreme real appreciation.

[10] For an account, see Rudiger Dornbusch, "Brazil's Incomplete Stabilization and Reform," *Brookings Papers on Economic Activity* 1 (1997), pp. 367–404.

The Chilean central bank was made independent of the fiscal authorities in 1990 (the same year a democratic government replaced the military regime of General Pinochet). That action further solidified the commitment not to monetize government deficits.[11]

Another new policy required all capital inflows (other than equity purchases) to be accompanied by a one-year, non-interest-bearing deposit equal to as much as 30 percent of the transaction. Because the duration of the deposit requirement was limited, the penalty fell disproportionately on short-term inflows, those most prone to be withdrawn by foreign investors in a crisis. One motivation for the implied capital inflow tax was to limit real currency appreciation; the other was to reduce the risk that a sudden withdrawal of foreign short-term funds would provoke a financial crisis. There is considerable controversy among economists as to whether the Chilean capital inflow barriers succeeded in their aims, although it is doubtful that they did much harm.[12]

Chile's policies have paid off handsomely. Between 1991 and 1997, the country enjoyed GDP growth rates averaging better than 8 percent per year. At the same time, inflation dropped from 26 percent per year in 1990 to only 6 percent by 1997. Chile has been rated not only as being the least corrupt country in Latin America, but also as being less corrupt than several European Union members and the United States.

Mexico Mexico introduced a broad stabilization and reform program in 1987, combining an aggressive reduction in public-sector deficits and debt with exchange rate targeting and wage-price guidelines negotiated with representatives of industry and labor unions.[13] That same year, the country made a significant commitment to free trade by joining the GATT. (Mexico subsequently joined the Organization for Economic Cooperation and Development and, in 1994, joined the North American Free Trade Area.)

Mexico fixed its peso's exchange rate against the U.S. dollar at the end of 1987, moved to a crawling peg at the start of 1989, and moved to a crawling band at the end of 1991. The government kept a level ceiling on the peso's possible appreciation but announced each year after 1991 a gradually rising limit on the currency's allowable extent of depreciation. Thus, the range of possible exchange rate fluctuation was permitted to increase over time.

Despite this potential flexibility, the Mexican authorities held the exchange rate near its appreciation ceiling. The peso therefore appreciated sharply in real terms, and a large current account deficit emerged. During 1994, the country's foreign exchange reserves fell to very low levels. Civil strife, a looming presidential transition, and devaluation fears contributed to this fall. Another important factor behind the foreign reserve leakage, however, was a continuing extension of government credits to banks experiencing loan losses. Mexico had rapidly privatized its banks without adequate regulatory safeguards, and it had also opened its capital account, thus giving the banks free access to foreign funds. Because

---

[11] For an overview of aspects of the Chilean approach to economic reform, see Barry P. Bosworth, Rudiger Dornbusch, and Raúl Labán, eds., *The Chilean Economy: Policy Lessons and Challenges* (Washington, D.C.: Brookings Institution, 1994). A classic account of Chilean financial problems at the start of the 1980s is Carlos F. Díaz-Alejandro, "Goodbye Financial Repression, Hello Financial Crash," *Journal of Development Economics* 19 (September/October 1985), pp. 1–24. This paper is highly recommended, as the problems discussed by Díaz-Alejandro have proven relevant far beyond the specific context of Chile.

[12] For a discussion, see Chapter 5 of the book by Kenen listed in this chapter's Further Readings. Also see Kevin Cowan and José De Gregorio, "International Borrowing, Capital Controls, and the Exchange Rate: Lessons from Chile," in Sebastian Edwards, ed., *Capital Controls and Capital Flows in Emerging Economies* (Chicago: University of Chicago Press, 2007), pp. 241–296.

[13] The ideas underlying the Mexican approach are explained by one of its architects, Pedro Aspe Armella, an economist trained at the Massachusetts Institute of Technology who was Mexico's finance minister for the period 1988–1994. See his book *Economic Transformation the Mexican Way* (Cambridge, MA: MIT Press, 1993). See also Nora Lustig, *Mexico: The Remaking of an Economy* (Washington, D.C.: Brookings Institution, 1992).

banks were confident they would be bailed out by the government if they met trouble, moral hazard was rampant. Hoping to spur growth and reduce a current account deficit that by then was nearly 8 percent of GNP, the new Mexican government that took over in December 1994 devalued the peso 15 percent beyond the depreciation limit promised a year before. The devalued currency peg was immediately attacked by speculators, and the government retreated to a float. Foreign investors panicked, pushing the peso down precipitously, and soon Mexico found itself unable to borrow except at penalty interest rates. As in 1982, default loomed again. The country avoided disaster only with the help of a $50 billion emergency loan orchestrated by the U.S. Treasury and the IMF.

Inflation, which had dropped from 159 percent in 1987 to only 7 percent in 1994, soared as the peso depreciated. Mexico's national output shrank by more than 6 percent in 1995. Unemployment more than doubled amid sharp fiscal cutbacks, sky-high interest rates, and a generalized banking crisis. But the contraction lasted only a year. By 1996, inflation was falling and the economy was recovering as the peso continued to float. Mexico regained access to private capital markets and repaid the U.S. Treasury ahead of schedule. A major achievement of Mexico has been expanding its democratic institutions and moving away from the virtual one-party rule that had characterized much of the country's 20th-century history.

East Asia: Success and Crisis

Until 1997 the countries of East Asia were the envy of the developing world. Their rapid growth rates were bringing them far up the development scale, putting several in striking distance of advanced-country status. Then they were overwhelmed by a disastrous financial crisis. The speed with which East Asia's economic success turned into economic chaos came as a rude shock to most observers. East Asia's setback sparked a broader crisis that engulfed developing countries as distant as Russia and Brazil. In this section we review the East Asian experience and the global repercussions of the region's crisis. The lessons, as we will see, reinforce those from Latin America.

The East Asian Economic Miracle

As we saw in Table 22-2, South Korea was a desperately poor nation in the 1960s, with little industry and apparently few economic prospects. In 1963, however, the country launched a series of sweeping economic reforms, shifting from an inward-looking, import-substitution development strategy to one that emphasized exports. And the country began a remarkable economic ascent. Over the next 50 years, South Korea increased its per capita GDP by a factor of 10—more than the increase that the United States has achieved over the past century.

Even more remarkable was that South Korea was not alone. Its economic rise was paralleled by that of a number of other East Asian economies. In the first wave were Hong Kong, Taiwan, and Singapore, all of which began growing rapidly in the 1960s. In the course of the 1970s and 1980s, the club of rapidly growing Asian economies expanded to include Malaysia, Thailand, Indonesia, and—awesomely—China, the world's most populous nation. For the first time since the rise of Japan as an industrial power in the late 19th century, a substantial part of the world appeared to be making the transition from third world to first.

There remains considerable dispute about the reasons for this economic "miracle," as we discussed in Chapter 11. In the early 1990s, it was fashionable among some commentators to ascribe Asia's growth to a common Asian system of industrial policy and business-government cooperation. However, even a cursory look at the economies involved

Why Have Developing Countries Accumulated Such High Levels of International Reserves?

Developing countries facing financial crises typically find that their international reserves have reached very low levels. A country that is fixing its exchange rate may have little choice but to let its currency depreciate once its reserves have run out. A country without liquid foreign exchange reserves may have no means to repay lenders who have previously extended short-term foreign currency loans. Like a run on a bank, market fears about potential default or depreciation can be self-fulfilling. If market confidence fails, reserves will quickly disappear and no new borrowing from foreigners will be possible. The resulting liquidity crunch may make it impossible for a country to meet its remaining foreign obligations.

This type of "bank run" mechanism has been at the heart of many developing-country crises, including the Asian economic crisis of 1997–1998, which we discuss in the next section. Following the Asian crisis, which affected a large number of countries throughout the world, several economists suggested that developing countries take matters into their own hands. Because foreign credit tends to dry up precisely when it is most needed, countries could best protect themselves by accumulating large war chests of ready cash—dollars, euros, and other widely acceptable foreign currencies.

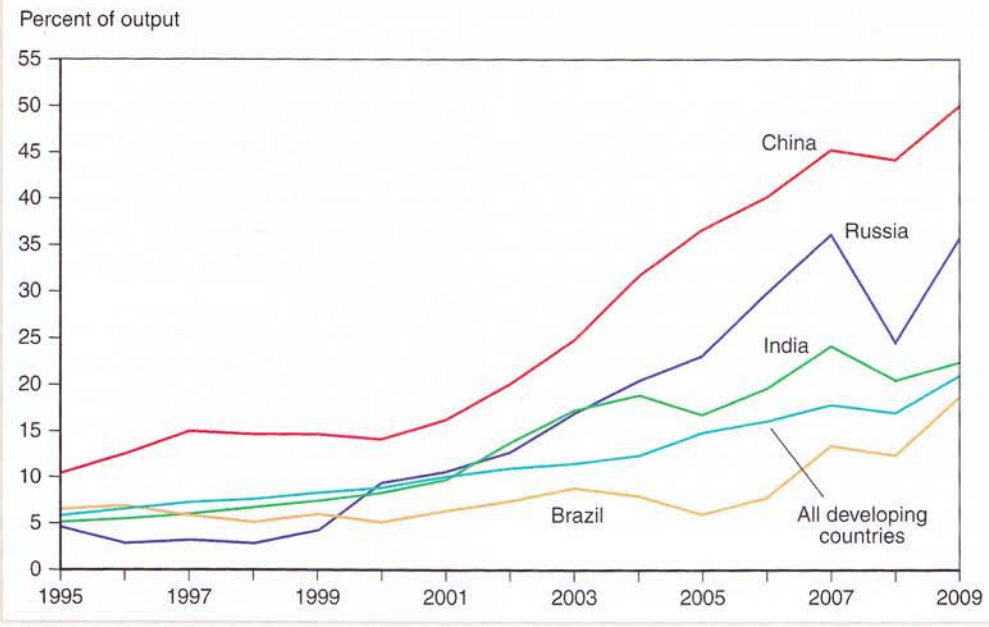
When countries had little involvement with world capital markets (as during the 1950s and early 1960s), reserve adequacy was judged largely by reference to the likelihood that export earnings might temporarily fall short of import needs. But in today's world of globalized finance, the volume of reserves needed to deter an attack might be orders of magnitude greater. As economist Martin Feldstein of Harvard put it, "The most direct way for a country to achieve liquidity is to accumulate substantial amounts of liquid foreign reserves.... [A] government should not judge the adequacy of its reserves in relation to the value of imports. A common reserve goal of, say, six months of imports ignores the fact that currency crises are about capital flows, not trade financing. What matters is the value of reserves relative to the potential selling of assets by speculators even if the country's fundamental economic conditions do not warrant a currency deterioration."*

We touched on the growth of international reserves in Chapter 18. As observed in that chapter, while reserves have grown for all countries, since the debt crisis of the 1980s they have grown especially quickly for developing countries. For developing countries as a group, however, the pace of reserve accumulation has accelerated most dramatically since the financial crises of the late 1990s. These reserve purchases have financed much of the United States' current account deficit, which likewise ballooned after 1999 (recall the discussion of global imbalances in Chapter 19). The accompanying figure shows international reserve holdings as a fraction of national output for the group of all developing countries, as well as for Brazil, Russia, India, and China. (These countries are often referred to as the "BRICs" in view of their recent strong growth performances.) In all the cases shown, reserves better than doubled (as a share of national product) between 1999 and 2009. China's reserve ratio rose by a factor of 3.4 over that period and Russia's increased by a factor of 8.3.†

For a number of developing countries, the levels of reserves are so high as to exceed their total short-term foreign currency debt to foreigners. These large reserve holdings therefore provide a high degree of protection against a sudden stop of capital inflows. Indeed, they helped the developing countries weather the industrial-country credit crunch of 2007–2009 (recall Chapter 21). As you can see in the figure, developing countries spent some reserves to shield themselves during the 2007–2009 crisis, but reserve stocks have been rebuilt since then.

*See Feldstein, "A Self-Help Guide for Emerging Markets," *Foreign Affairs* 78 (March/April 1999), pp. 93–109. For a recent analytical treatment, see Olivier Jeanne, "International Reserves in Emerging Market Countries: Too Much of a Good Thing?" *Brookings Papers on Economic Activity* 1 (2007), pp. 1–79.

†Developing countries hold roughly a 60 percent share of their reserves in the form of U.S. dollars. They hold the balance mostly in euros, but also in a few alternative major currencies such as the Japanese yen, British pound, and Swiss franc.



International Reserves Held by Developing Countries

Since 1999, developing countries have sharply increased their holdings of foreign currency reserves, mostly U.S dollars.

Source: International Monetary Fund, *World Economic Outlook* database.

The self-insurance motive for holding reserves is not the entire story, however. In some cases, reserve growth has been an undesired byproduct of intervention policies to keep the currency from appreciating. China provides a case in point. China's development strategy has relied on increasing export levels of labor-intensive goods to fuel a rapid rise in living standards. In effect, appreciation of the Chinese renminbi makes Chinese labor more expensive relative to foreign labor, so China has tightly limited the currency's appreciation over time by buying up dollars. Despite capital controls limiting inflows of foreign funds, speculative money entered the country in anticipation of future appreciation, and reserves swelled enormously. The government has gradually loosened its capital outflow controls, hoping that reserves will fall as Chinese investors go abroad, but the tactic has had only limited success so far. At the end of 2010, China's reserves stood at 50 percent of national output. We discuss China's policies in greater detail in the Case Study on pages 651–653.

makes the claim of a common system dubious. The high-growth economies did include regimes such as South Korea's, where the government took an active role in the allocation of capital among industries; but it also included regimes such as those of Hong Kong and Taiwan, where this type of industrial policy was largely absent. Some economies, such as those of Taiwan and Singapore, relied heavily on the establishment of local subsidiaries of multinational firms. Others, such as South Korea and Hong Kong, relied mainly on domestic entrepreneurs.

What the high-growth economies did have in common were high rates of saving and investment; rapidly improving educational levels among the work force; and if not free trade, at least a high degree of openness to and integration with world markets.

TABLE 22-4 East Asian CA/GDP (annual averages, percent of GDP)

Country	1990–1997	1998–2000	2001–2009
China	1.5	2.1	6.5
Hong Kong	0.5	4.0	10.1
Indonesia	–2.2	4.1	2.0
Malaysia	–5.8	12.3	13.3
South Korea	–1.6	6.5	1.6
Taiwan	3.9	2.2	7.4
Thailand	–6.2	10.2	1.8

Source: International Monetary Fund, *World Economic Outlook* database.

Perhaps surprisingly, before 1990 most rapidly growing Asian economies financed the bulk of their high investment rates out of domestic savings. In the 1990s, however, the growing popularity of emerging markets among investors in the advanced world led to substantial lending to developing Asia; as Table 22-4 shows, several of the Asian countries began running, as a counterpart to these loans, large current account deficits as a share of GDP. A few economists worried that these deficits might pose the risk of a crisis similar to the one that had hit Mexico in late 1994, but most observers regarded large capital flows to such rapidly growing and macroeconomically stable economies as justified by the expected profitability of investment opportunities.

Asian Weaknesses

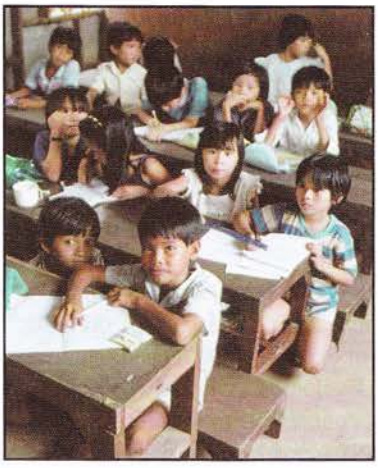
As it turned out, in 1997 Asian economies did indeed experience a severe financial crisis. And with the benefit of hindsight, several weaknesses in their economic structures—some shared by Latin American countries that had gone through crises—became apparent. Three issues in particular stood out:

1. *Productivity.* Although the rapid growth of East Asian economies was not in any sense an illusion, even before the crisis a number of studies had suggested that some limits to expansion were appearing. The most surprising result of several studies was that the bulk of Asian output growth could be explained simply by the rapid growth of production *inputs*—capital and labor—and that there had been relatively little increase in productivity, that is, in output per unit of input. Thus in South Korea, for example, the convergence toward advanced-country output per capita appeared to be mainly due to a rapid shift of workers from agriculture to industry, a rise in educational levels, and a massive increase in the capital-labor ratio within the nonagricultural sector. Evidence for a narrowing of the technological gap with the West was unexpectedly hard to find. The implication of these studies was that continuing high rates of capital accumulation would eventually produce diminishing returns, and, possibly, that the large financial inflows taking place were not justified by future profitability after all.
2. *Banking regulation.* Of more immediate relevance to the crisis was the poor state of banking regulation in most Asian economies. Domestic depositors and foreign investors regarded Asian banks as safe, not only because of the strength of the economies, but also because they believed that the governments would stand behind the banks in case of any difficulties. But banks and other financial institutions were not subject to effective government supervision over the kinds of risks they were undertaking. As the experience in Latin America should have made clear, moral hazard was present in spades. Despite this, several of the East Asian countries had eased private

What Did East Asia Do Right?

The growth of East Asian economies between the 1960s and the 1990s demonstrated that it is possible for a country to move rapidly up the development ladder. But what are the ingredients for such success?

One way to answer this question may be to look at the distinctive attributes of what the World Bank, in its 1993 study entitled *The East Asian Miracle*, dubs the HPAEs, the high-performing Asian economies.



One important ingredient was a high saving rate: In 1990 HPAEs saved 34 percent of GDP, compared with only half that in Latin America, slightly more in South Asia.

Another important ingredient was a strong emphasis on education. Even in 1965, when the HPAEs were still quite poor, they had high enrollment rates in basic education: Essentially all children received basic schooling in Hong Kong, Singapore, and South Korea, and even desperately poor Indonesia had a 70 percent enrollment rate. By 1987, rates of enrollment in secondary school in East Asia were well above those in Latin American nations such as Brazil.

Finally, two other characteristics of the HPAEs were a relatively stable macroeconomic environment, free from high inflation or major economic slumps, and a high share of trade in GDP. The accompanying table shows annual average inflation rates from 1961 to 1991 and 1988 trade shares (exports plus imports as a share of GDP) for selected East Asian countries, comparing them with those of other developing areas. The contrast in stability and openness with Latin America is particularly clear.

These contrasts played an important role in the "conversion" of many leaders in Latin America and elsewhere to the idea of economic reform, in terms of both a commitment to price stability and the opening of markets to the world.

Country	Inflation Rate, 1961–1991	Trade Share, 1988 (ratio)
Hong Kong	8.8	2.82
Indonesia	12.4	0.42
South Korea	12.2	0.66
Malaysia	3.4	1.09
Singapore	3.6	3.47
Taiwan	6.2	0.90
Thailand	5.6	0.35
South Asia	8.0	0.19
Latin America	192.1	0.23

access to financial inflows in the 1990s, and foreign money was readily available both to East Asian banks and directly to East Asian corporate borrowers. Because of original sin, foreign debts were fixed in foreign currency terms.

In several Asian countries, close ties between business interests and government officials appear to have helped foster considerable moral hazard in lending. In Thailand, so-called finance companies, often run by relatives of government officials, lent money to highly speculative real estate ventures; in Indonesia, lenders were far too eager to finance ventures by members of the president's family. These factors help to

explain how, despite high saving rates, East Asian countries were led to invest so much that their current accounts were in deficit prior to the crisis.

Some analysts have suggested that excessive lending, driven by moral hazard, helped create an unsustainable boom in Asian economies—especially in real estate—that temporarily concealed the poor quality of many of the investments; and that the inevitable end of this boom caused a downward spiral of declining prices and failing banks. However, while moral hazard was certainly a factor in the run-up to the crisis, its importance remains a subject of considerable dispute.

3. *Legal framework.* One important weakness of Asian economies became apparent only after they'd stumbled: the lack of a good legal framework for dealing with companies in trouble. In the United States, there is a well-established procedure for bankruptcy—that is, for dealing with a company that cannot pay its debts. In such a procedure, the courts take possession of the firm on behalf of its creditors, and then seek to find a way to satisfy their claims as adequately as possible. Often this means keeping the company in existence and converting the debts it cannot pay into ownership shares. In Asian economies, however, bankruptcy law was weak, in part because the astonishing growth of the economies had made corporate failures a rare event. When times did turn bad, a destructive impasse developed. Troubled companies would simply stop paying their debts. They then could not operate effectively because nobody would lend to them until the outstanding debts were repaid. Yet the creditors lacked any way to seize the limping enterprises from their original owners.

Of course, every economy has weaknesses, but the performance of the East Asian economies had been so spectacular that few paid much attention to theirs. Even those who were aware that the "miracle" economies had problems could hardly have anticipated the catastrophe that overtook them in 1997.

The Asian Financial Crisis

The Asian financial crisis is generally considered to have started on July 2, 1997, with the devaluation of the Thai baht. Thailand had been showing signs of financial strain for more than a year. During 1996 it became apparent that far too many office towers had been built; first the nation's real estate market, then its stock market, went into decline. In the first half of 1997, speculation about a possible devaluation of the baht led to an accelerating loss of foreign exchange reserves, and on July 2 the country attempted a controlled 15 percent devaluation. As in the case of Mexico in 1994, however, the attempted moderate devaluation spun out of control, sparking massive speculation and a far deeper plunge.

Thailand itself is a small economy. However, the sharp drop in the Thai currency was followed by speculation against the currencies first of its immediate neighbor, Malaysia; then of Indonesia; and eventually of the much larger and more developed economy of South Korea. All of these economies seemed to speculators to share with Thailand the weaknesses previously listed; all were feeling the effects in 1997 of renewed economic slowdown in their largest industrial neighbor, Japan. In each case, governments were faced with awkward dilemmas, stemming partly from the dependence of their economies on trade and partly from the fact that domestic banks and companies had large debts denominated in dollars. If the countries had simply allowed their currencies to drop, rising import prices would have threatened to produce dangerous inflation, and the sudden increase in the domestic currency value of debts might have pushed many potentially viable banks and companies into bankruptcy. On the other hand, defending the currencies would have required at least temporary high interest rates to persuade investors to keep their money in the country, and these high interest rates would themselves have produced an economic slump and caused banks to fail.

All of the afflicted countries except Malaysia thus turned to the IMF for assistance and received loans in return for implementation of economic plans that were supposed to contain the damage: higher interest rates to limit the exchange rate depreciation, efforts to avoid large budget deficits, and "structural" reforms that were supposed to deal with the weaknesses that had brought on the crisis in the first place. Despite the IMF's aid, however, the result of the currency crisis was a sharp economic downturn. All of the troubled countries went from growth rates in excess of 6 percent in 1996 to a severe contraction in 1998.

Worst of all was the case of Indonesia, where economic crisis and political instability reinforced each other in a deadly spiral, all made much worse by the collapse of domestic residents' confidence in the nation's banks. By the summer of 1998, the Indonesian rupiah had lost 85 percent of its original value, and few if any major companies were solvent. The Indonesian population was faced with mass unemployment and, in some cases, the inability to afford even basic foodstuffs. Ethnic violence broke out.

As a consequence of the collapse in confidence, the troubled Asian economies were also forced into a dramatic reversal of their current account positions. As Table 22-4 shows, they moved abruptly from sometimes large deficits to huge surpluses. Most of this reversal came not through increased exports but through a huge drop in imports, as the economies contracted.

Currencies eventually stabilized throughout crisis-stricken Asia and interest rates decreased, but the direct spillover from the region's slump caused slowdowns or recessions in several neighboring countries, including Hong Kong, Singapore, and New Zealand. Japan and even parts of Europe and Latin America felt the effects. Most governments continued to take the IMF-prescribed medicine, but in September 1998 Malaysia—which had never accepted an IMF program—broke ranks and imposed extensive controls on capital movements, hoping that the controls would allow the country to ease monetary and fiscal policies without sending its currency into a tailspin. China and Taiwan, which maintained capital controls and had current account surpluses over the pre-crisis period, were largely unscathed in the crisis.

Fortunately, the downturn in East Asia was "V-shaped": After the sharp output contraction in 1998, growth returned in 1999 as depreciated currencies spurred higher exports. However, not all of the region's economies fared equally well, and controversy remains over the effectiveness of Malaysia's experiment with capital controls. In general, investment rates have remained depressed and current accounts have remained in surplus, sometimes substantially so.

Spillover to Russia

Asia's woes sparked a general flight by investors from emerging markets, putting severe pressure on the economic policies of distant developing nations. Russia was affected soon after.

Starting in 1989, the countries of the Soviet bloc, and ultimately the Soviet Union itself, shook off communist rule and embarked on transitions from centrally planned economic allocation to the market. These transitions were traumatic, involving rapid inflation, steep output declines, and a phenomenon that had been largely unknown in planned economies—unemployment. Such beginnings were inevitable. In most of the formerly communist countries, nearly the entire economy had to be privatized. Financial markets and banking practices were largely unknown, there was no legal framework for private economic relations or corporate governance, and initial property rights were ambiguous. States lacked the modern fiscal machinery through which industrial countries design and collect taxes, and given the cautious attitude of foreign investors and the absence of domestic capital markets, the monetary printing press was the only way to finance needed social expenditures.

By the end of the 1990s, a handful of Eastern European economies, including those of Poland, Hungary, and the Czech Republic, had made successful transitions to the capitalist

TABLE 22-5 Real Output Growth and Inflation: Russia and Poland, 1991–2003 (percent per year)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000–2003
Real Output Growth										
Russia	–9.0	–14.5	–8.7	–12.7	–4.1	–3.4	1.4	–5.3	6.3	6.8
Poland	–7.0	2.0	4.3	5.2	6.8	6.0	6.8	4.8	4.1	2.6
Inflation Rate										
Russia	92.7	1,734.7	878.8	307.5	198.0	47.7	14.8	27.7	85.7	18.0
Poland	70.3	43.0	35.3	32.2	27.9	19.9	14.9	11.8	7.3	4.6

Source: International Monetary Fund, *World Economic Outlook*, various issues.

order. Not surprisingly, each of these countries was geographically close to the EU and had a recent tradition (prior to Soviet occupation in the late 1940s) of industrial capitalism, including a body of contract and property law. Many of the other successor states that emerged from the wreckage of the Soviet Union were still faring quite badly even as the 20th century ended. The largest of these was Russia, which retained much of the nuclear weaponry left by the Soviet Union. Table 22-5 compares Russia's output and inflation performance over the years 1991–2003 with that of one of the most successful countries in the region, Poland, which joined the EU in 2004.

Over the course of the 1990s, Russia's weak government was unable to collect taxes or even to enforce basic laws; the country was riddled with corruption and organized crime. It is no wonder that measured output shrank steadily and that inflation was hard to control, with the result that at the end of the 1990s, most Russians were substantially worse off than they had been under the old Soviet regime. In 1997, the government managed to stabilize the ruble and reduce inflation with the help of IMF credits, and the economy even managed to eke out a (barely) positive GDP growth rate that year. However, the government had slowed inflation by substituting borrowing for seigniorage; neither the attempts to collect taxes nor the attempts to reduce spending were very successful, and the state debt therefore had ballooned. When, in addition, the prices of oil and other key Russian commodity exports were depressed by the crisis in Asia, investors began, in the spring of 1998, to fear that the ruble, like many of the Asian currencies the year before, was in for a steep devaluation. Thus interest rates on government borrowing rose, inflating Russia's fiscal deficit.

Despite Russia's failure to abide by earlier IMF stabilization programs, the Fund nonetheless entered into a new agreement with Russia's government and provided billions to back up the ruble's exchange rate, fearing that a Russian collapse could lead to renewed turbulence in the developing world as well as pose a nuclear threat if Russia decided to sell off its arsenal. (Some called the country "too nuclear to fail.") In mid-August 1998, however, the Russian government abandoned its exchange rate target; at the same time as it devalued, it defaulted on its debts and froze international payments. The government resumed printing money to pay its bills and within a month, the ruble had lost half its value. As Table 22-5 shows, inflation took off and output slumped. Despite Russia's rather small direct relevance to the wealth of international investors, its actions set off panic in the world capital market as investors tried to increase their liquidity by selling emerging market securities. In response, the U.S. Federal Reserve lowered dollar interest rates sharply, possibly (we will never know for sure!) averting a worldwide financial collapse. Russia's output recovered in 1999 and growth was generally robust afterward, helped by higher world oil prices.

Case Study

Can Currency Boards Make Fixed Exchange Rates Credible?

Argentina's 1991 monetary law requiring 100 percent foreign exchange backing for the monetary base made it an example of a **currency board**, in which the monetary base is backed entirely by foreign currency and the central bank therefore holds no domestic assets (Chapter 18). A major advantage of the currency board system, aside from the constraint it places on fiscal policy, is that the central bank can never run out of foreign exchange reserves in the face of a speculative attack on the exchange rate.[14]

Developing countries are sometimes advised by observers to adopt currency board systems. How do currency boards work, and can they be relied on to insulate economies from speculative pressures?

In a currency board regime, a note-issuing authority announces an exchange rate against some foreign currency and, at that rate, simply carries out any trades of domestic currency notes against the foreign currency that the public initiates. The currency board is prohibited by law from acquiring any *domestic* assets, so all the currency it issues automatically is fully backed by foreign reserves. In most cases, the note-issuing authority is not even a central bank: Its primary role could be performed just as well by a vending machine.

Currency boards originally arose in the colonial territories of European powers. By adopting a currency board system, the colony effectively let its imperial ruler run its monetary policy, at the same time handing the ruling country all seigniorage coming from the colony's demand for money. Hong Kong has a currency board that originated this way, although the British crown colony (Hong Kong's status before it reverted to China on July 1, 1997) switched from being a pound sterling currency board to a U.S. dollar currency board after the Bretton Woods system fell apart.

More recently, the automatic, "vending machine" character of currency boards has been seen as a way to import anti-inflation credibility from the country to which the domestic currency is pegged. Thus Argentina, with its experience of hyperinflation, mandated a currency board rule in its 1991 Convertibility Law in an attempt to convince a skeptical world that it would not have even the option of inflationary policies in the future. Similarly, Estonia and Lithuania, with no recent track record of monetary policy after decades of Soviet rule, hoped to establish low-inflation reputations by setting up currency boards after they gained independence. Estonia became a member of the euro zone in 2011.

While a currency board has the advantage of moving monetary policy further away from the hands of politicians who might abuse it, it also has disadvantages, even compared to the alternative of a conventional fixed exchange rate. Since the currency board may not acquire domestic assets, it cannot lend currency freely to domestic banks in times of financial panic (a problem Argentina encountered). Even though there are other ways for the government to backstop bank deposits (for example, through deposit insurance, which amounts to a government guarantee to use its taxation power, if necessary, to pay depositors), the flexibility to print currency when the public is demanding it from banks gives the government's deposit guarantee extra clout.

Another drawback compared to a conventional fixed exchange rate is in the area of stabilization policies. For a country that is completely open to international capital movements, monetary policy under a fixed rate is ineffective anyway, so the sacrifice of open-market operations in domestic assets is costless (recall Chapter 18). This is not

[14] Strictly speaking, Argentina's version of a currency board involved a fudge: A limited fraction of the monetary base could be backed up by U.S. dollar-denominated Argentine government debt. This provision was analogous to the "fiduciary issue" of domestic credit that central banks were entitled to extend under the pre-1914 gold standard.

true, however, for the many developing countries that maintain some effective capital account restrictions—for them, monetary policy can have effects even with a fixed exchange rate, because domestic interest rates are not tightly linked to world rates. Moreover, as we saw in Chapter 18, a devaluation that *surprises* market participants can help to reduce unemployment even when capital is fully mobile. The devaluation option becomes a problem, though, when people *expect* it to be used. In that case, expectations of devaluation, by themselves, raise real interest rates and slow the economy. By promising to give up the devaluation option, countries that adopt currency boards hope to have a long-term stabilizing effect on expectations that outweighs the occasional inconvenience of being unable to surprise the markets.

In the wake of Mexico's 1994–1995 crisis, several critics of the country's policies suggested it would do well to turn to a currency board. The subsequent crisis that started in Asia generated calls for currency boards in Indonesia, Brazil, and even Russia. Can a currency board really enhance the credibility of fixed exchange rates and low-inflation policies?

Because a currency board typically may not acquire government debt, some argue that it can discourage fiscal deficits, thus reducing a major cause of inflation and devaluation (although Argentina's experience in this area provides a counterexample). The high level of foreign reserves relative to the monetary base also enhances credibility. However, other factors, including the banking sector's increased vulnerability, can put the government under pressure to abandon the currency board link altogether. If markets anticipate the possibility of devaluation, some of the potential benefits of a currency board will be lost, as Argentina's experience also shows. For just that reason, some Argentine policy makers suggested that their country adopt a policy of **dollarization**, under which it would have forgone having a domestic currency altogether and simply used the U.S. dollar instead. The only loss, they argued, would have been the transfer of some seigniorage to the United States. But the possibility of devaluation would have been banished, leading to a fall in domestic interest rates. Ecuador took this approach in 1999, and El Salvador did so in 2001.

For a country with a legacy of high inflation, even the most solemn commitment to maintain a currency board will fail to bring automatic immunity from speculation. For example, Hong Kong's long-standing link to the dollar was fiercely attacked by speculators during the Asian crisis, leading to very high interest rates and a deep recession. Thus currency boards can bring credibility only if countries also have the political will to repair the economic weaknesses—such as rigid labor markets, fragile banking systems, and shaky public finances—that could make them vulnerable to speculative attack. On this criterion, Indonesia and Brazil probably do not qualify and Russia certainly does not. With its lack of wage flexibility and undisciplined public finances, Argentina ultimately failed the test. Developing countries that are too unstable to manage flexible exchange rates successfully are best advised to dispense with a national currency altogether and adopt a widely used and stable foreign money.[15] Even then, they will remain vulnerable to credit crises if foreign lenders fear the possibility of default.

[15] For a clear overview of the theory and practice of currency boards, see Owen F. Humpage and Jean M. McIntire, "An Introduction to Currency Boards," *Federal Reserve Bank of Cleveland Economic Review* 31 (Quarter 2, 1995), pp. 2–11. See also Tomás J. T. Baliño, Charles Enoch, et al., *Currency Board Arrangements: Issues and Experiences,* Occasional Paper 151 (Washington, D.C.: International Monetary Fund, August 1997). For a skeptical view even of the case for dollarization, see Sebastian Edwards, "The False Promise of Dollarisation," *Financial Times* (May 11, 2001), p. 17.

Lessons of Developing-Country Crises

The emerging market crisis that started with Thailand's 1997 devaluation produced what might be called an orgy of finger-pointing. Some Westerners blamed the crisis on the policies of the Asians themselves, especially the "crony capitalism" under which businesspeople and politicians had excessively cozy relationships. Some Asian leaders, in turn, blamed the crisis on the machinations of Western financiers; even Hong Kong, normally a bastion of free market sentiment, began intervening to block what it described as a conspiracy by speculators to drive down its stock market and undermine its currency. And almost everyone criticized the IMF, although some were saying that it was wrong to tell countries to try to limit the depreciation of their currencies, others that it was wrong to allow the currencies to depreciate at all.

Nonetheless, some very clear lessons emerge from a careful study of the Asian crisis and earlier developing-country crises in Latin America and elsewhere.

1. *Choosing the right exchange rate regime.* It is perilous for a developing country to fix its exchange rate unless it has the means and commitment to do so, come what may. East Asian countries found that confidence in official exchange rate targets encouraged borrowing in foreign currencies. When devaluation occurred nonetheless, much of the financial sector and many corporations became insolvent as a result of extensive foreign currency–denominated debts. The developing countries that have successfully stabilized inflation have adopted more flexible exchange rate systems or moved to greater flexibility quickly after an initial period of pegging aimed at reducing inflation expectations. When they have not done this, they have tended to experience real appreciations and current account deficits that leave them vulnerable to speculative attack. Even in Argentina, where the public's fear of returning to the hyperinflationary past instilled a widely shared determination to prevent inflation, a fixed exchange rate proved untenable over the long term. Mexico's experience since 1995 shows that larger developing countries can manage quite well with a floating exchange rate, and it is hard to believe that, if Mexico had been fixing, it would have survived the Asian crisis repercussions of 1998 without developing a currency crisis of its own.

2. *The central importance of banking.* A large part of what made the Asian crisis so devastating was that it was not purely a currency crisis, but rather a currency crisis inextricably mixed with banking and financial crises. In the most immediate sense, governments were faced with the conflict between restricting the money supply to support the currency and the need to print large quantities of money to deal with bank runs. More broadly, the collapse of many banks disrupted the economy by cutting off channels of credit, which made it difficult for even profitable companies to stay in business. This should not have come as a surprise in Asia. Similar effects of banking fragility played roles in the crises of Argentina, Chile, and Uruguay in the 1980s; of Mexico in 1994–1995; and even in those of industrial countries like Sweden during the 1992 attacks on the EMS (Chapter 20). Unfortunately, Asia's spectacular economic performance prior to its crisis blinded people to its financial vulnerabilities. In the future, wise governments will devote a great deal of attention to shoring up their banking systems to minimize moral hazard, in the hope of becoming less vulnerable to financial catastrophes.

3. *The proper sequence of reform measures.* Economic reformers in developing countries have learned the hard way that the order in which liberalization measures are taken really does matter. That truth also follows from basic economic theory: The principle of the *second best* tells us that when an economy suffers from multiple distortions, the removal of only a few may make matters worse, not better. Developing countries generally suffer from many, many distortions, so this point is especially important for

them. Consider the sequencing of financial account liberalization and financial sector reform, for example. It is clearly a mistake to open up the financial account before sound safeguards and supervision are in place for domestic financial institutions. Otherwise, the ability to borrow abroad will simply encourage reckless lending by domestic banks. When the economy slows down, foreign capital will flee, leaving domestic banks insolvent. Thus, developing countries should delay opening the financial account until the domestic financial system is strong enough to withstand the sometimes violent ebb and flow of world capital. Economists also argue that trade liberalization should precede financial account liberalization. Financial account liberalization may cause real exchange rate volatility and impede the movement of factors of production from nontraded into traded goods industries.

4. *The importance of contagion.* A final lesson of developing-country experience is the vulnerability of even seemingly healthy economies to crises of confidence generated by events elsewhere in the world—a domino effect that has come to be known as **contagion**. Contagion was at work when the crisis in Thailand, a small economy in Southeast Asia, provoked another crisis in South Korea, a much larger economy some 7,000 miles away. An even more spectacular example emerged in August 1998, when a plunge in the Russian ruble sparked massive speculation against Brazil's real. The problem of contagion, and the concern that even the most careful economic management may not offer full immunity, has become central to the discussion of possible reforms of the international financial system, to which we now turn.

Reforming the World's Financial "Architecture"

Economic difficulties lead, inevitably, to proposals for economic reforms. The Asian economic crisis and its repercussions suggested to many people that the international financial and monetary system, or at least the part of it that applies to developing countries, was in need of change. Proposals for such an overhaul have come to be grouped under the impressive if vague title of plans for a new financial "architecture."

Why did the Asian crisis convince nearly everyone of a need for rethinking international monetary relations, when earlier crises of the 1990s did not? One reason was that the Asian countries' problems seemed to stem primarily from their connections with the world capital market. The crisis clearly demonstrated that a country can be vulnerable to a currency crisis even if its own position looks healthy by normal measures. None of the troubled Asian economies had serious budget deficits, excessive rates of monetary expansion, worrisome levels of inflation, or any of the other indicators that have traditionally signaled vulnerability to speculative attack. If there were severe weaknesses in the economies—a proposition that is the subject of dispute, since some economists argue that the economies would have been quite healthy had it not been for the speculative attacks—they involved issues such as the strength of the banking system that might have remained dormant in the absence of sharp currency depreciations.

The second reason for rethinking international finance was the apparent strength of contagion throughout the international capital markets. The speed and force with which market disturbances could be spread between distant economies suggested that preventive measures taken by individual economies might not suffice. Just as a concern about economic interdependence had inspired the Bretton Woods blueprint for the world economy in 1944, world policy makers again put the reform of the international system on their agendas after the Asian crisis.

Developing countries generally recovered quickly from the financial crisis of 2007–2009—this time, unlike after 1982, the rich countries were the ones that suffered

protracted recessions (Chapter 19). But it was unclear whether developing-country resilience was due to reforms adopted after the Asian crisis, higher holdings of international reserves, strong commodity prices, greater flexibility of exchange rates, or the historically low interest rates enforced by industrial-country central banks. In view of the breathtaking contagion again displayed as the 2007–2009 crisis spread across the globe, sentiment that international finance needs an overhaul has remained strong. Here we look at some of the main issues involved.

Capital Mobility and the Trilemma of the Exchange Rate Regime

One effect of the Asian crisis was to dispel any illusions we may have had about the availability of easy answers to the problems of international macroeconomics and finance. The crisis and its spread made it all too clear that some well-known policy trade-offs for open economies remain as stark as ever—and perhaps have become even more difficult to manage.

Chapter 19 spelled out the basic macroeconomic policy *trilemma* for open economies. Of the three goals that most countries share—independence in monetary policy, stability in the exchange rate, and the free movement of capital—only two can be reached simultaneously. Exchange rate stability is more important for the typical developing country than for the typical developed country. Developing countries have less ability to influence their terms of trade than do developed countries, and exchange rate stability can be more important for keeping inflation in check and avoiding financial stress in developing countries. In particular, the widespread developing-country practice of borrowing in dollars or other major currencies (both externally and internally) means that currency depreciations can sharply increase the real burden of debts.

The conundrum facing would-be reformers of the world's financial architecture can then be summarized as follows: Because of the threat of the kind of currency crises that hit Mexico in 1994–1995 and Asia in 1997, it seems hard if not impossible to achieve all three objectives at the same time. That is, to achieve one of them, a country must give up one of the other two objectives. Until the late 1970s, most developing countries maintained exchange controls and limited private capital movements in particular, as we have seen. (Some major developing countries, notably China and India, still retain such controls.) While there was considerable evasion of the controls, they did slow up the movement of capital. As a result, countries could peg their exchange rates for extended periods—producing exchange rate stability—yet devalue their currencies on occasion, which offered considerable monetary autonomy. The main problem with controls was that they imposed onerous restrictions on international transactions, thus reducing efficiency and contributing to corruption.

In the last two decades of the 20th century, capital became substantially more mobile, largely because controls were lifted, but also because of improved communications technology. This new capital mobility made adjustable peg regimes extremely vulnerable to speculation, since capital would flee a currency on the slightest hint that it might be devalued. (The same phenomenon occurred among developed countries in the 1960s and early 1970s, as we saw in Chapter 19.) The result has been to drive developing countries toward one or the other sides of the triangle in Figure 19-1: either rigidly fixed exchange rates and a renunciation of monetary autonomy, like dollarization or the currency board system described above, or flexibly managed (and even floating) exchange rates. But despite the lesson of experience that intermediate positions are dangerous, developing countries have been uncomfortable with both extremes. While a major economy like the United States can accept a widely fluctuating exchange rate, a smaller, developing economy often finds the costs of such volatility hard to sustain, in part because it is more open and in part because it suffers from original sin. As a result, even countries claiming to

"float" their currencies may display a "fear of floating" and instead limit currency fluctuations over long periods.[16] Meanwhile, as we have seen, a rigid system like a currency board can deprive a country of flexibility, especially when it is dealing with financial crises in which the central bank must act as the lender of last resort.

Several respected economists, including Columbia University's Jagdish Bhagwati and Joseph Stiglitz and Harvard University's Dani Rodrik, have argued that developing countries should keep or reinstate restrictions on capital mobility to be able to exercise monetary autonomy while enjoying stable exchange rates.[17] In the face of the Asian crisis, China and India, for example, put plans to liberalize their capital accounts on hold; some countries that had liberalized capital movements considered the possibility of reimposing restrictions (as Malaysia actually did). Others have employed limited controls to resist large financial inflows that have caused real exchange rates to appreciate too sharply. However, most policy makers, both in the developing world and in the industrial countries, continued to regard capital controls as either difficult to enforce for long or too disruptive of normal business relationships (as well as a potent source of corruption). Thus most discussion of financial architecture focused instead on meliorative measures—ways to make the remaining choices less painful.

"Prophylactic" Measures

Since the risk of financial crisis is what makes the decisions surrounding the choice of exchange rate regime so difficult, some recent proposals focus on ways to reduce that risk. Typical proposals include calls for the following:

More "transparency." At least part of what went wrong in Asia was that foreign banks and other investors lent money to Asian enterprises without any clear idea of what the risks were, and then pulled their money out equally blindly when it became clear that those risks were larger than they had imagined. There have therefore been many proposals for greater "transparency"—that is, better provision of financial information—in the same way that corporations in the United States are required to provide accurate public reports of their financial positions. The hope is that increased transparency will reduce both the tendency of too much money rushing into a country when things are going well, and the rush for the exits when the truth turns out to be less favorable than the image.

Stronger banking systems. As we have seen, one factor that made the Asian crisis so severe was the way that the currency crisis interacted with bank runs. It is at least possible that these interactions would have been milder if the banks themselves had been stronger. So there have also been many proposals for strengthening banks, through both closer regulation of the risks they take and increased capital requirements, which ensure that substantial amounts of the owners' own money is at risk. Of course, the 2007–2009 crisis demonstrated that industrial-country financial markets were actually less robust than they had seemed. The need for greater transparency and stricter regulation of financial institutions is universal.

Enhanced credit lines. Some reformers also want to establish special credit lines that nations could draw on in the event of a currency crisis, in effect adding to their foreign

[16] See Guillermo A. Calvo and Carmen M. Reinhart, "Fear of Floating," *Quarterly Journal of Economics* 117 (May 2002), pp. 379–408.

[17] See Jagdish N. Bhagwati, "The Capital Myth," *Foreign Affairs* 77 (May–June, 1998), pp. 7–12; Dani Rodrik, "Who Needs Capital-Account Convertibility?" in Stanley Fischer et al., *Should the IMF Pursue Capital-Account Convertibility?* Princeton Essays in International Finance 207 (May 1998); and Joseph E. Stiglitz, *Globalization and Its Discontents* (New York: W. W. Norton & Company, 2003).

exchange reserves. The idea would be that the mere existence of these credit lines would usually make them unnecessary: As long as speculators knew that countries had enough credit to meet even a large outflow of funds, they would not hope or fear that their own actions would produce a sudden devaluation. Such credit lines could be provided by private banks, or by public bodies such as the IMF. This reform area, too, can be seen as applicable to richer countries after the events of 2007–2009 (see the box on central bank currency swaps in Chapter 21, pages 606–608).

Increased equity capital inflows relative to debt inflows. If developing countries financed a greater proportion of their private foreign capital inflows through equity portfolio investment or direct foreign investment rather than through debt issuance, the probability of default would be much lower. The countries' payments to foreigners would then be more closely linked to their economic fortunes, and would fall automatically when times were hard.

How effective these various measures might be remains a matter of dispute. Cynics suggest that there was plenty of negative information about Asian economies before the crisis, if investors had only been willing to see it, and that the size of the capital flight that actually took place would have swamped any bank capital and any credit line, as happened during Argentina's 2001–2002 crisis. Nonetheless, there has been progress in putting at least some of these measures into effect.

In addition, the international community recognizes that developing countries play increasingly important roles, as lenders as well as borrowers, in world financial markets. Ongoing discussions, in Basel and elsewhere, of global cooperation in bank regulation increasingly include the main emerging market countries as key participants.

Coping with Crisis

Even with the proposed prophylactic measures, crises would still surely happen. Thus there have also been proposals to modify the way the world responds to such crises.

Many of these proposals relate to the role and policies of the IMF. Here opinion is bitterly divided. Some conservative critics believe that the IMF should simply be abolished, arguing that its very existence encourages irresponsible lending by making borrowers and lenders believe that they will always be saved from the consequences of their actions—a version of the moral hazard argument previously described. Other critics argue that the IMF is necessary, but that it has misconstrued its role—by, for example, trying to insist on structural reform when it should instead restrict itself to narrow financial issues. A number of Asian countries bitterly resented having to follow IMF advice during their crisis in the late 1990s; for them, one motive for reserve accumulation has been to avoid having to borrow IMF dollars—and accept IMF conditions. Finally, defenders of the IMF—and also some of its critics—argue that the agency has simply been underfunded for its task, that in a world of high capital mobility, it needs to have the ability to provide much larger loans much more quickly than it presently can. IMF resources rose sharply as a result of the 2007–2009 crisis, and moves are afoot to raise the IMF's perceived legitimacy in the developing world by giving poorer countries a greater voting share in the IMF's management. Measures like these should improve the functioning of the international system.

Another set of proposals is based on the idea that sometimes a country simply cannot pay its debts, and that international contracts should therefore be structured so as to speed—and reduce the costs of—renegotiation between creditors and debtors. As we noted in our discussion of the debt crisis of the 1980s, limited debt write-offs did bring that crisis to an end. Critics argue that such provisions would be either ineffective or counterproductive because they would encourage countries to borrow too much, in the knowledge that they could more easily renegotiate their debts—moral hazard once again.

Case Study

China's Undervalued Currency

Over the first decade of the 2000s, China developed a substantial overall current account surplus and a large bilateral trade surplus with the United States. In 2006, the current account surplus reached $239 billion, or 9.1 percent of China's output, and the bilateral surplus with the United States, at $233 billion, was of similar size. A good part of China's exports to the United States consists of reassembled components imported from elsewhere in Asia, a factor that reduces other Asian countries' exports to the United States and increases China's. Nonetheless, trade frictions between the United States and China have escalated, with American critics focusing on China's refusal to allow its currency, the renminbi, to appreciate substantially in the face of big external surpluses.

Figure 22-2 shows that the exchange rate of the renminbi was fixed at 8.28 yuan per dollar between the Asian crisis period and 2005. Facing the threat of trade sanctions by the U.S. Congress, China carried out a 2.1 percent revaluation of its currency in July 2005, created a narrow currency band for the exchange rate, and allowed the currency to appreciate at a steady, slow rate. By January 2008, the cumulative appreciation from the initial 8.28 yuan-per-dollar rate was about 13 percent—well below the 20 percent or more undervaluation alleged by trade hawks in Congress. Early in the summer of 2008, in the midst of the financial crisis, China pegged its exchange rate once again, this time at roughly 6.83 yuan to the dollar. In response to renewed foreign pressure, China in

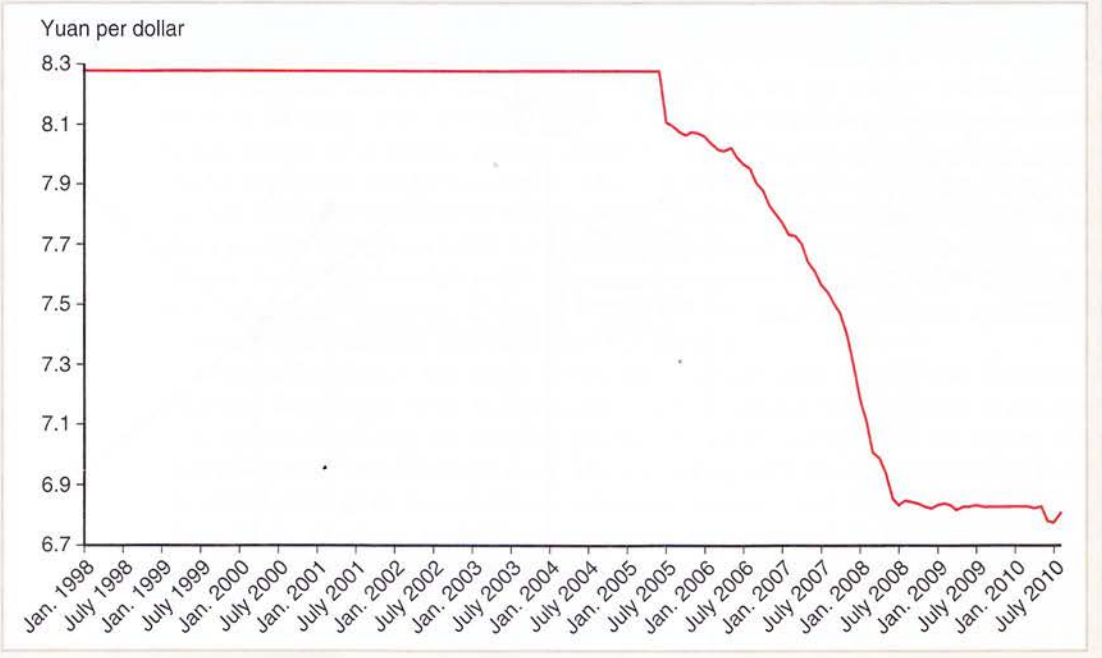


Figure 22-2

Yuan/Dollar Exchange Rate, 1998–2010

The renminbi was fixed for several years before July 2005. After a 2.1 percent initial revaluation, the currency appreciated slowly against the U.S. dollar until the summer of 2008.

June 2010 announced it was adopting a "managed float" exchange rate regime, but as of this writing, the new arrangement has brought only a small nominal appreciation of the yuan against the U.S. dollar.

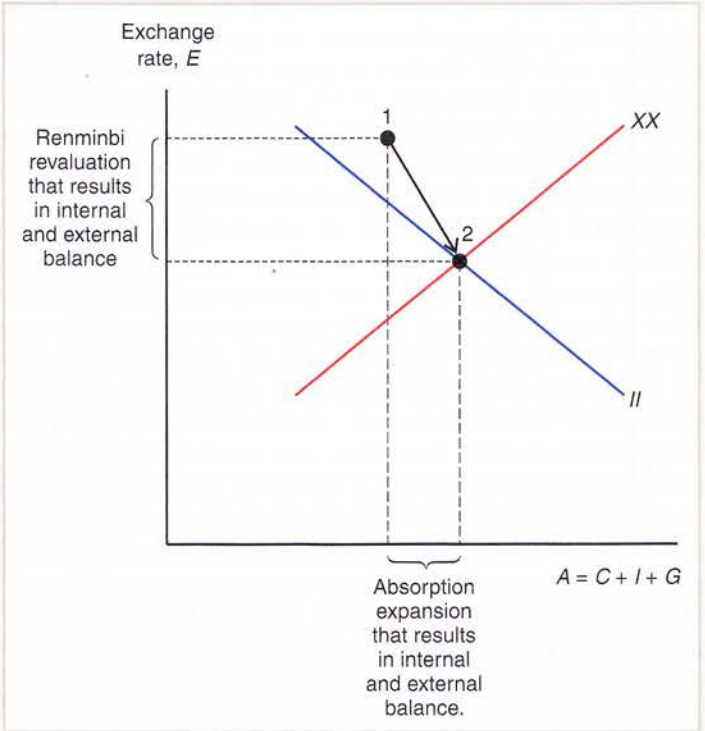
China's government has moved so slowly because it fears losing export competitiveness and fears the domestic income redistribution that a large exchange rate change could cause. Many economists outside of China believe, however, that a substantial appreciation of the renminbi would be in China's best interest. For one thing, the large reserve increases associated with China's currency peg were causing inflationary pressures in the Chinese economy. Reserves grew quickly not only because of the large current account surplus, but also because of speculative inflows of money betting on a substantial currency revaluation. To avoid attracting further financial inflows through its porous capital controls, China has hesitated to raise interest rates and choke off inflation. In the past, however, high inflation in China has been associated with significant social unrest.

Figure 22-3 shows the position of China's economy, using the diagram developed earlier in this book as Figure 19-2. In the early 2010s, China was at a point such as 1 in Figure 22-3, with a big external surplus and growing inflation pressures—but with a strong reluctance to raise unemployment and thereby slow the movement of labor from the relatively backward countryside into industry. The policy package that moves the economy to both internal and external balance at Figure 22-3's point 2 is a rise in absorption, coupled with currency appreciation. The appreciation works to switch expenditure toward imports and lower inflationary pressures; the absorption increase works directly to lower the export surplus, at the same time preventing the emergence of unemployment that a stand-alone currency appreciation would bring.

Figure 22-3

Rebalancing China's Economy

China faces a large external surplus and inflationary pressures. It can fix both without raising unemployment by expanding absorption and revaluing its currency.



Economists also point to the need for China to raise both private and government consumption.[18] China's savers put aside more than 45 percent of GNP every year, a staggering number. Saving is so high in part because of a widespread lack of basic services that the government earlier supplied, such as health care. The resulting uncertainty leads people to save in a precautionary manner against the possibility of future misfortunes. By providing a better social safety net, the government would raise private and government consumption at the same time. In addition, there is a strong need for expanded government spending on items such as environmental cleanup, investment in cleaner energy sources, and so on.

While China's leaders have publicly agreed with the needs to raise consumption and appreciate the currency, they have moved very cautiously so far, accelerating their reforms only when external political pressures (such as the threat of trade sanctions) become severe. Whether this pace of change will satisfy external critics, as well as the demands of the majority of Chinese people for higher security and living standards, remains to be seen.

Understanding Global Capital Flows and the Global Distribution of Income: Is Geography Destiny?

As we pointed out at the start of this chapter, today's world is characterized by a vast international dispersion in levels of income and well-being. In contradiction of a simple theory of convergence, however, there is no systematic tendency for poorer countries' income levels to converge, even slowly, to those of richer countries.[19] In conventional macroeconomic models of economic growth, countries' per capita real incomes depend on their stocks of physical and human capital, whose marginal products are highest where stocks are low relative to the stock of unskilled labor. Because high marginal products of investment present strong incentives for capital accumulation, including capital inflows from abroad, the standard models predict that poorer countries will tend to grow more quickly than rich ones. Ultimately, if they have access to the same technologies used in richer countries, poor countries will themselves become rich.

In practice, however, this happy story is the exception rather than the rule. Furthermore, relatively little capital flows to developing countries, despite the prediction of the simple convergence theory that the marginal product of capital, and therefore the returns to foreign investment, should be high there. The scale of capital flows to the developing world is dwarfed by the gross flows between advanced countries. And since the late 1990s (see Table 22-3), net flows to developing countries have reversed as the United States has sucked in most of the world's available current account surpluses.

[18] For a clear discussion, see Nicholas R. Lardy, "China: Toward a Consumption-Driven Growth Path," *Policy Briefs in International Economics* (Washington, D.C.: Institute for International Economics, October 2006).

[19] While this statement is true when the unit of study is the country, it is less accurate when the unit of study is the individual. A preponderance of the world's poor in 1960 lived in China and India, two countries that have experienced relatively rapid growth in recent years. A main cause of their growth, however, has been market-friendly economic reforms. For further discussion, see Stanley Fischer, "Globalization and Its Challenges," *American Economic Review* 93 (May 2003), pp. 1–30.

In fact, the risks of investing in several of the developing countries limit their attractiveness for investors, both foreign and domestic alike; and those risks are closely related to the countries' poor economic growth performances. When governments are unwilling or unable to protect property rights, investors will be unwilling to invest in either physical or human capital, so growth will be nonexistent or low.[20]

What explains the fact that some countries have grown very rich while some attract little or no foreign investment and remain in extreme poverty? Two main schools of thought on the question focus, alternatively, on countries' *geographical features* and on their *institutions of government.*

A leading proponent of the geography theory is UCLA geographer Jared Diamond, whose fascinating and influential book *Guns, Germs, and Steel: The Fates of Human Societies* (New York: W. W. Norton & Company, 1997) won a Pulitzer Prize in 1998. In one version of the geography view, aspects of a country's physical environment such as climate, soil type, diseases, and geographical accessibility determine its long-run economic performance. Thus, for example, unfriendly weather, an absence of easily domesticated large animal species, and the presence of yellow fever and malaria doomed tropical zones to lag behind the more temperate regions of Europe, which could support agricultural innovations such as crop rotation. For these reasons, Diamond argues, it was the Europeans who conquered the inhabitants of the New World and not vice versa.

Another factor stressed in some geographical theories is access to international trade. Countries that are landlocked and mountainous trade less with the outside world—and therefore fare worse—than those countries blessed with good ocean harbors, navigable internal waterways, and easily traveled roadways.

In contrast, those favoring the institutions of government as the decisive factor for economic prosperity focus on the success of government in protecting private property rights, thereby encouraging private enterprise, investment, innovation, and ultimately economic growth. According to this view, a country that cannot protect its citizens from arbitrary property confiscation—for example, through extortion by private gangsters or crooked public officials—will be a country in which people do not find it worthwhile to exert effort in the pursuit of wealth.[21] This mechanism is one factor underlying the positive association between lower corruption and higher per capita income shown in Figure 22-1: A low corruption level promotes productive economic activity by ensuring investors that the fruits of their labors will not be arbitrarily seized. As we noted in discussing this evidence, however, the positive slope in the figure is not decisive evidence that national institutions determine national income. It could be, for example, that the slope shown is primarily caused by richer countries' desire to stem corruption and the greater resources they can devote to that task. Even if this is the case, it might still be true that geography determines income levels, and thereby ultimately determines institutions as well. Further, if more favorable geography leads to higher income and, through higher income, to a better institutional environment (characterized, among other things, by lower corruption), then the geography school of thought would appear to have it right.

---

[20] On the "puzzle" of low capital flows to poor countries, see Robert E. Lucas, Jr., "Why Doesn't Capital Flow from Rich to Poor Countries?" *American Economic Review* 80 (May 1990), pp. 92–96. On the relationship between the productivity of capital and international investment, see Pierre-Olivier Gourinchas and Olivier D. Jeanne, "The Elusive Gains from International Financial Integration," *Review of Economic Studies* 73 (July 2006), pp. 715–741. A study that ties limited capital flows to poor institutional quality is Laura Alfaro, Sebnem Kalemli-Ozcan, and Vadym Volosovych, "Why Doesn't Capital Flow from Rich to Poor Countries? An Empirical Investigation," *Review of Economics and Statistics* 90 (May 2008), pp. 347–368.

[21] See, for example, Douglass C. North, *Institutions, Institutional Change, and Economic Performance* (Cambridge: Cambridge University Press, 1990).

For policy makers, the possibility of enhancing economic growth through the reform of institutions would appear bleaker.[22]

How can we hope to distinguish among the various statistical possibilities? One strategy is to find some measurable factor that influences the institutions governing private property but is otherwise unrelated to current per capita income levels. Statisticians call such a variable an *instrumental variable* (or more simply, an *instrument*) for institutions. Because the instrument is not affected by current income, its measured statistical relationship with current income reflects a causal effect of institutions on income rather than the reverse. Unfortunately, because of the complex interrelationships among economic variables, valid instrumental variables are, as a general rule, notoriously hard to find.

Economists Daron Acemoglu and Simon Johnson of the Massachusetts Institute of Technology and James Robinson of Harvard University suggest an imaginative approach to this dilemma. They propose historical mortality rates of early European settlers in former colonies as an instrument for institutional quality.[23] Their case that settler mortality provides a useful instrument rests on two arguments.

First, they argue that the level of settler mortality determined the later institutions governing property rights. (This is another case of geography influencing income *through* its effect on institutions.) In areas with high mortality rates (such as the former Belgian Congo in Africa), Europeans could not settle successfully; instead their goal was to plunder wealth as quickly as possible. The institutions they set up were thus directed to that goal rather than to the protection of property rights, and those exploitative institutions were taken over by new, indigenous ruling elites when the former colonies gained independence. In contrast, Europeans themselves settled in low-mortality regions such as North America and Australia and demanded institutions that would protect political and economic rights, safeguarding private property against arbitrary seizures. (Recall the dispute over taxation without representation that sparked the American Revolution!) Those are the countries that have prospered and are rich today.

A valid instrument must satisfy a second requirement besides having an influence on institutions. It must otherwise not affect today's per capita incomes. Acemoglu, Johnson, and Robinson argue that this requirement is satisfied also. As they put it,

> The great majority of European deaths in the colonies were caused by malaria and yellow fever. Although these diseases were fatal to Europeans who had no immunity, they had limited effect on indigenous adults who had developed various types of immunities. These diseases are therefore unlikely to be the reason why many countries in Africa and Asia are very poor today.... This notion is supported by the [lower] mortality rates of local people in these areas.[24]

---

22 In countries that formerly were European colonies, current institutions often were implanted by foreign rulers. Geography itself played a role in the types of institutions that colonizers set up. Thus, in the West Indies and the American South, climates and soil were conducive to plantation agriculture based on slave labor and an increasing-returns technology that ensured large farming units and an unequal income distribution. The resulting institutions—even if set up by colonists whose mother countries had limited enlightened rule—were fundamentally hostile to egalitarian political ideals and property protection. Inequality of wealth and power perpetuated itself in many cases, thus hampering long-term growth. For a classic discussion, see Stanley L. Engerman and Kenneth D. Sokoloff, "Factor Endowments, Institutions, and Differential Paths of Growth among New World Economies: A View from Economic Historians of the United States," in Stephen Haber, ed., *How Latin America Fell Behind* (Stanford, CA: Stanford University Press, 1997). The institutions hypothesis allows geography to affect income, but requires that geography affect income only (or mainly) by influencing institutions.

23 The data cover soldiers, sailors, and bishops and are drawn from the 17th through the 19th centuries. See Daron Acemoglu, Simon Johnson, and James Robinson, "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review* 91 (December 2001), pp. 1369–1401.

24 Acemoglu, Johnson, and Robinson, *ibid.*, p. 1371.

Acemoglu, Johnson, and Robinson show that the effect of early European settler mortality rates on current per capita income, operating through the influence of mortality on later institutions, is large. They further argue that once the latter effect is taken into account, geographical variables such as distance from the equator and malarial infection rates have no independent influence on current income levels. Provided that one accepts the premises of the statistical analysis, the institutions theory would seem to emerge victorious over the geography theory. But the debate has not ended there.

Some critics have suggested that Acemoglu, Johnson, and Robinson's measures of institutional quality are inadequate; others argue that their mortality data are faulty or even that historical mortality rates could be related directly to productivity today. In one recent paper, a group of economists argues that the main influence on institutions is human capital, that is, the accumulated skills and education of the population. Even an authoritarian dictatorship may establish democracy and property rights as its citizens become more educated. These writers point out that South Korea did just this, and suggest that perhaps European settlers' human capital, not their transplantation of institutions, is what spurred subsequent growth.[25] As we pointed out earlier, one cause of East Asia's high subsequent growth was a high level of investment in education, often decreed by nondemocratic governments.

India, a former British colony with an overwhelmingly indigenous population, is arguably another counterexample to the reasoning of Acemoglu, Johnson, and Robinson. Strong growth performance in recent years, based on a process of economic reform that began in 1991, has finally allowed the country to break away from the ranks of the poorest developing nations.

SUMMARY

1. There are vast differences in per capita income and in well-being among countries at different stages of economic development. Furthermore, developing countries have not shown a uniform tendency of *convergence* to the income levels of industrial countries. However, some developing countries, notably several in East Asia, have seen dramatic increases in living standards since the 1960s. Explaining why some countries remain poor and which policies can promote economic growth remains one of the most important challenges in economics.
2. Developing countries form a heterogeneous group, especially since many have embarked on wide-ranging economic reform in recent years. Most have at least some of the following features: heavy government involvement in the economy, including a large share of public spending in GNP; a track record of high inflation, usually reflecting government attempts to extract *seigniorage* from the economy in the face of ineffective tax collection; weak credit institutions and undeveloped capital markets; pegged exchange rates and exchange or capital controls, including crawling peg exchange rate regimes aimed at either controlling inflation or preventing real appreciation; a heavy

[25] See Edward L. Glaeser, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, "Do Institutions Cause Growth?" *Journal of Economic Growth* 9 (September 2004), pp. 271–303. In support of institutional over geographical explanations, see Dani Rodrik, Arvind Subramanian, and Francesco Trebbi, "Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development," *Journal of Economic Growth* 9 (June 2004), pp. 131–165. For a contrary view, see Jeffrey D. Sachs, "Institutions Don't Rule: Direct Effects of Geography on Per Capita Income," Working Paper 9490, National Bureau of Economic Research, February 2003. The role of international trade in growth is another focus of current research. Rodrik and his co-authors argue that openness to international trade is not a prime direct determinant of per capita income, but rather that openness leads to better institutions, and, through that indirect channel, to higher income.

reliance on primary commodity exports. Corruption seems to increase as a country's relative poverty rises. Many of the preceding developing-country features date from the Great Depression of the 1930s, when industrialized countries turned inward and world markets collapsed.

3. Because many developing economies offer potentially rich opportunities for investment, it is natural for them to have current account deficits and to borrow from richer countries. In principle, developing-country borrowing can cause gains from trade that make both borrowers and lenders better off. In practice, however, borrowing by developing countries has sometimes led to *default* crises that generally cause currency and banking crises. Like currency and banking crises, default crises can contain a self-fulfilling element even though their occurrence depends on fundamental weaknesses in the borrowing country. Often default crises begin with a sudden stop of financial inflows.
4. In the 1970s, as the Bretton Woods system collapsed, countries in Latin America entered an era of distinctly inferior macroeconomic performance with respect to growth and inflation. Uncontrolled external borrowing led, in the 1980s, to a generalized developing-country debt crisis, its greatest impact being in Latin America and Africa. Starting with Chile in the mid-1980s, some large Latin American countries started to undertake more thorough economic reform, including not just disinflation but also control of the government budget, vigorous *privatization*, deregulation, and trade policy reform. Argentina adopted a *currency board* in 1991. Not all the Latin American reformers succeeded equally in strengthening their banks, and failures were evident in a number of countries. For example, Argentina's currency board collapsed after ten years.
5. Despite their astoundingly good records of high output growth and low inflation and budget deficits, several key developing countries in East Asia were hit by severe panics and devastating currency depreciation in 1997. In retrospect, the affected countries had several vulnerabilities, most of them related to widespread moral hazard in domestic banking and finance and linked to the *original sin* of foreign currency denominated debts. The effects of the crisis spilled over to countries as distant as Russia and Brazil, illustrating the element of *contagion* in modern-day international financial crises. This factor, plus the fact that the East Asian countries had few apparent problems before their crises struck, has given rise to demands for rethinking the international financial "architecture." These demands were reinforced by the global nature of the 2007–2009 financial crisis.
6. Proposals to reform the international architecture can be grouped as preventive measures or as ex post (that is, after the fact) measures, with the latter applied once safeguards have failed to stop a crisis. Among preventive measures are greater transparency concerning countries' policies and financial positions; enhanced regulation of domestic banking; and more extensive credit lines, either from private sources or from the IMF. Ex post measures that have been suggested include more extensive and flexible lending by the IMF. Some observers suggest more extensive use of capital controls, both to prevent and manage crises, but in general not too many countries have taken this route. In the years to come, developing countries will no doubt experiment with capital controls, *dollarization*, floating exchange rates, and other regimes. The architecture that will ultimately emerge is not at all clear.
7. Recent research on the ultimate determinants of economic growth in developing countries has focused on geographical issues such as the disease environment, institutional features such as government protection of property rights, and human capital endowments. The flow of capital from rich to poor countries also depends on these factors. While economists agree that all of these determinants are important, it is less clear

where policy should focus first in its attempts to lift poor countries out of their poverty. For example, institutional reform might be an appropriate first step if human capital accumulation depends on the protection of property rights and personal security. On the other hand, it makes little sense to create an institutional framework for government if there is insufficient human capital to run government effectively. In that case, education should come first. Because the statistical obstacles to reaching unambiguous answers are formidable, a balanced effort on all fronts is warranted.

KEY TERMS

contagion, p. 647
convergence, p. 621
currency board, p. 644
default, p. 627
dollarization, p. 645
original sin, p. 631
privatization, p. 630
seigniorage, p. 624

PROBLEMS

1. Can a government always collect more seigniorage simply by letting the money supply grow faster? Explain your answer.
2. Assume that a country's inflation rate was 100 percent per year in both 1990 and 2000 but that inflation was falling in the first year and rising in the second. Other things equal, in which year was seigniorage revenue greater? (Assume that asset holders correctly anticipated the path of inflation.)
3. In the early 1980s, Brazil's government, through an average inflation rate of 147 percent per year, got only 1.0 percent of output as seigniorage, while Sierra Leone's government got 2.4 percent through an inflation rate less than a third as high as Brazil's. Can you think of differences in financial structure that might partially explain this contrast? (Hint: In Sierra Leone, the ratio of currency to nominal output averaged 7.7 percent; in Brazil, it averaged only 1.4 percent.)
4. Suppose an economy open to international capital movements has a crawling peg exchange rate under which its currency is pegged at each moment but is continuously devalued at a rate of 10 percent per year. How would the domestic nominal interest rate be related to the foreign nominal interest rate? What if the crawling peg is not fully credible?
5. The external debt buildup of some developing countries (such as Argentina) in the 1970s was due, in part, to (legal or illegal) capital flight in the face of expected currency devaluation. (Governments and central banks borrowed foreign currencies to prop up their exchange rates, and these funds found their way into private hands and into bank accounts in New York and elsewhere.) Since capital flight leaves a government with a large debt but creates an offsetting foreign asset for citizens who take money abroad, the consolidated net debt of the country as a whole does not change. Does this mean that countries whose external government debt is largely the result of capital flight face no debt problem?
6. Much developing-country borrowing during the 1970s was carried out by state-owned companies. In some of these countries, there have been moves to privatize the economy by selling state companies to private owners. Would the countries have borrowed more or less if their economies had been privatized earlier?
7. How might a developing country's decision to reduce trade restrictions such as import tariffs affect its ability to borrow in the world capital market?
8. Given output, a country can improve its current account by cutting either investment or consumption (private or government). After the debt crisis of the 1980s began,

many developing countries achieved improvements in their current accounts by cutting investment. Was this a sensible strategy?

9. Why would Argentina have to give the United States seigniorage if it gave up its peso and completely dollarized its economy? How would you measure the size of Argentina's sacrifice of seigniorage? (To complete this exercise, think through the actual steps Argentina would have to take to dollarize its economy. You may assume that the Argentine central bank's assets consist of 100 percent of interest-bearing U.S. Treasury bonds.)
10. Early studies of the economic convergence hypothesis, which looked at data for a group of currently industrialized countries, found that those that were relatively poor a century ago subsequently grew more quickly. Is it valid to infer from this finding that the convergence hypothesis is true?
11. Some critics of the adoption of fixed exchange rates by emerging market economies argue that these exchange rates create a kind of moral hazard. Do you agree? (Hint: Might borrowers behave differently if they knew exchange rates were changeable from day to day?)
12. In some emerging market economies, not only are debt obligations to foreigners denominated in dollars, but so are many of the economies' internal debts, that is, debts of one domestic resident to another. This phenomenon is sometimes called *liability dollarization*. How might liability dollarization worsen the financial market disruption caused by a sharp depreciation of the domestic currency against the dollar?

FURTHER READINGS

Jahangir Aziz, Steven V. Dunaway, and Eswar Prasad, eds. *China and India: Learning from Each Other*. Washington, D.C.: International Monetary Fund, 2006. Essays on Chinese and Indian strategies for promoting economic stability and growth.

Guillermo A. Calvo and Frederic S. Mishkin. "The Mirage of Exchange Rate Regimes for Emerging Market Countries." *Journal of Economic Perspectives* 17 (Winter 2003), pp. 99–118. Argues that institutions are more important than exchange rate regimes for understanding developing-country macroeconomic performance.

Paul Collier and Jan Willem Gunning. "Explaining African Economic Performance." *Journal of Economic Literature* 37 (March 1999), pp. 69–111. Surveys the causes of Africa's generally poor record of economic growth and stability over much of the postwar period.

Barry Eichengreen and Ricardo Hausmann, eds. *Other People's Money: Debt Denomination and Financial Instability in Emerging Market Economies*. Chicago: University of Chicago Press, 2005. Essays on original sin.

Stanley Fischer. "Exchange Rate Regimes: Is the Bipolar View Correct?" *Journal of Economic Perspectives* 15 (Spring 2001), pp. 3–24. Assesses countries' choices of increasingly extreme exchange rate regimes.

Albert Fishlow. "Lessons from the Past: Capital Markets During the 19th Century and the Interwar Period." *International Organization* 39 (Summer 1985), pp. 383–439. Historical review of the international borrowing experience, including comparisons with the post-1982 debt crisis.

Morris Goldstein. *Managed Floating Plus*. Washington, D.C.: Institute for International Economics, 2002. A proposal for managing exchange rate flexibility by emerging market economies.

Morris Goldstein and Nicholas R. Lardy, eds. *Debating China's Exchange Rate Policy*. Washington, D.C.: Peterson Institute for International Economics, 2008. Essays on China's macroeconomic policies and their global repercussions.

Morris Goldstein and Nicholas R. Lardy. *The Future of China's Exchange Rate Policy*. Washington, D.C.: Peterson Institute for International Economics, 2009. Compact but thorough analysis of China's macroeconomic challenges.

Graciela L. Kaminsky, Carmen M. Reinhart, and Carlos A. Végh. "The Unholy Trinity of Financial Contagion." *Journal of Economic Perspectives* 17 (Winter 2003), pp. 51–74. Discusses the international propagation of sudden stops and emerging market financial crises.

Peter B. Kenen. *The International Financial Architecture: What's New? What's Missing?* Washington, D.C.: Institute for International Economics, 2001. Reviews emerging market crises and the consequent proposals to reform the global financial system.

David S. Landes. *The Wealth and Poverty of Nations.* New York: W. W. Norton & Company, 1999. Broad-ranging overview of the global development experience.

Ronald I. McKinnon. *The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy*, 2nd edition. Baltimore: Johns Hopkins University Press, 1993. Essays on the proper sequencing of economic reforms.

Peter J. Montiel. *Macroeconomics in Emerging Markets.* Cambridge: Cambridge University Press, 2003. Comprehensive analytical overview of macroeconomic policy issues for developing economies.

Eswar S. Prasad et al. *Effects of Financial Globalization on Developing Countries: Some Empirical Evidence.* Occasional Paper 220. Washington, D.C.: International Monetary Fund, 2003. Surveys the role of international financial flows in emerging market economies.

Raghuram G. Rajan and Ioannis Tokatlidis. "Dollar Shortages and Crises." *International Journal of Central Banking* 1 (September 2005), pp. 177–220. Excellent overview of the institutional weaknesses in developing economies that give rise to liability dollarization.

Dani Rodrik. *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth.* Princeton: Princeton University Press, 2007. Essays on the interplay of institutions and globalization in the process of economic growth.

Nouriel Roubini and Brad Setser. *Bailouts or Bail-ins? Responding to Financial Crises in Emerging Economies.* Washington, D.C.: Institute for International Economics, 2004. Analysis and proposals on the international financial "architecture."

Joseph E. Stiglitz and others. *The Stiglitz Report: Reforming the International Monetary and Financial Systems in the Wake of the Global Crisis.* New York: The New Press, 2010. Report of a United Nations commission of financial experts, with a focus on implications for developing economies.

myeconlab

MYECONLAB CAN HELP YOU GET A BETTER GRADE

If your exam were tomorrow, would you be ready? For each chapter, MyEconLab Practice Tests and Study Plans pinpoint which sections you have mastered and which ones you need to study. That way, you are more efficient with your study time, and you are better prepared for your exams.

To see how it works, turn to page 9 and then go to
www.myeconlab.com/krugman