

# Factors Driving Global Economic Integration

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Global economic integration is not a new phenomenon. Some communication and trade took place between distant civilizations even in ancient times. Since the travels of Marco Polo seven centuries ago, global economic integration—through trade, factor movements, and communication of economically useful knowledge and technology—has been on a generally rising trend. This process of globalization in the economic domain has not always proceeded smoothly. Nor has it always benefited all whom it has affected. But, despite occasional interruptions, such as following the collapse of the Roman Empire or during the interwar period in this century, the degree of economic integration among different societies around the world has generally been rising. Indeed, during the past half century, the pace of economic globalization (including the reversal of the interwar decline) has been particularly rapid. And, with the exception of human migration, global economic integration today is greater than it ever has been and is likely to deepen going forward.<sup>1</sup>

Three fundamental factors have affected the process of economic globalization and are likely to continue driving it in the future. First, improvements in the technology of transportation and communication have reduced the costs of transporting goods, services, and factors of production and of communicating economically useful knowledge and technology. Second, the tastes of individuals and societies have generally, but not universally, favored taking advan-

tage of the opportunities provided by declining costs of transportation and communication through increasing economic integration. Third, public policies have significantly influenced the character and pace of economic integration, although not always in the direction of increasing economic integration.

These three fundamental factors have influenced the pattern and pace of economic integration in all of its important dimensions. In particular, this paper discusses three important dimensions of economic integration: (1) through human migration; (2) through trade in goods and services; and (3) through movements of capital and integration of financial markets. After examining how fundamental forces have influenced economic integration in these dimensions, the paper concludes with reflections on three issues of general importance to the future course of global economic integration: the importance of communication as an influence on integration; the possibility that we may see a sharp reversal in the general trend of increasing integration, as occurred in the interwar period; and the apparent end of imperialism as a mechanism of integration. Before turning to this agenda, however, it is important to emphasize a key theme that will recur in subsequent discussion: The main factors that drive the process of economic integration exert not only independent influences but also interact in important and complex ways.

### **Interactions among the fundamental factors driving economic integration**

Although technology, tastes, and public policy each have important independent influences on the pattern and pace of economic integration in its various dimensions, they clearly interact in important ways. Improvements in the technology of transportation and communication do not occur spontaneously in an economic vacuum. The desire of people to take advantage of what they see as the benefits of closer economic integration—that is, the taste for the benefits of integration—is a key reason why it is profitable to make the innovations and investments that bring improvements in the technology of transportation and communication. And, public policy has often played a significant role in fostering innovation and investment in

transportation and communication both to pursue the benefits of closer economic integration (within as well as across political boundaries) and for other reasons, such as national defense.

The tastes that people have and develop for the potential benefits of closer economic integration are themselves partly dependent on experience that is made possible by cheaper means of transportation and communication.<sup>2</sup> For example, centuries ago, wealthy people in Europe first learned about the tea and spices of the East as the consequence of limited and very expensive trade. The broadening desire for these products resulting from limited experience hastened the search for easier and cheaper means of securing them. As a by-product of these efforts, America was discovered, and new frontiers of integration were opened up in the economic and other domains. More recently, if less dramatically, it is clear that tastes for products and services produced in far away locations (including tastes exercised through travel and tourism), as well as for investment in foreign assets, depend to an important degree on experience. As this experience grows, partly because it becomes cheaper, the tastes for the benefits of economic integration typically tend to rise. For example, it appears that as global investors have gained more experience with equities issued by firms in emerging market countries, they have become more interested in diversifying their portfolios to include some of these assets.

Public policy toward economic integration is also, to an important extent, responsive to the tastes that people have regarding various aspects of such integration, as well as to the technologies that make integration possible. On the latter score, it is relevant to note the current issues concerning public policy with respect to commerce conducted over the Internet. Before recent advances in computing and communications technology, there was no Internet over which commerce could be conducted; and, accordingly, these issues of public policy simply did not arise. Regarding the influence of tastes on public policy, the situation is complicated. Reflecting the general desire to secure the perceived benefits of integration, public policies usually, if not invariably, tend to support closer economic integration within political jurisdictions. The disposition of public policy

toward economic integration between different jurisdictions is typically more ambivalent. Better harbors built with public support (and better internal means of transportation as well) tend to facilitate international trade—both imports and exports. Import tariffs and quotas, however, are clearly intended to discourage people from exercising their individual tastes for imported products and encourage production of domestic substitutes. Sadly, the mercantilist fallacy that seems to provide common-sense support for these policies often finds political resonance. Even very smart politicians, such as Abraham Lincoln (who favored a protective tariff, as well as public support for investments to enhance domestic economic integration) often fail to understand the fundamental truth of Lerner's (1936) symmetry theorem—a tax on imports is fundamentally the same thing as a tax on exports.

It should be emphasized that the interactions between public policy and both tastes and technology in their effects on economic integration can be quite complex and sometimes surprising. Two examples help to illustrate this point. First, for several centuries, there has been active trade between Britain and the Bordeaux region of France, with Britain importing large quantities of Bordeaux wine. This trade, however, was seriously interrupted (if not completely suppressed) during various periods of hostility between the two countries when one side or the other wished to suppress trade with the enemy. Partly as a result of being cut off from Bordeaux wines, and partly as a means of strengthening its alliance with Portugal, Britain sought to develop imports of Portuguese wines. The existing Portuguese wines, however, did not meet British requirements. A solution was found in creating a new product—Portuguese red wine from the Duoro region, fortified with grape brandy that gave the wine an extra alcoholic kick, retained some of the fruit sugar that would otherwise have been absorbed in fermentation, and helped protect the wine during shipment in hot weather.<sup>3</sup> The result of this technological innovation was a new product—modern port—that developed and retained a considerable market, especially in Britain, even after barriers to the acquisition of French wines were reduced.

The second example concerns U.S. public policy toward interna-

tional trade in sugar, which, in a bizarre way, is partly the consequence of policies pursued by Napoleon Bonaparte and Admiral Lord Nelson. For many years, the United States has maintained tight import quotas on sugar to keep the domestic price typically at roughly three times the world market level. The domestic political interests that support this policy include some sugar refiners, some producers of cane sugar in the Deep South and Hawaii, and a few thousand sugar beet farmers primarily in the upper Midwest. Production of sugar from beets is a “new” technology, dating back to the Napoleonic period. Before that time, sugar was produced from cane grown primarily in the West Indies. Admiral Lord Nelson’s establishment of naval supremacy over the French enabled Britain to cut off Napoleon’s empire from imports of West Indian sugar. In response, Napoleon established a prize for finding a substitute for cane-based sugar which could be produced within his empire. The sugar beet was discovered, and has been with us ever since.

This story becomes even more complicated when we consider reactions to the U.S. government’s sugar policy. Responding to the high domestic price of sugar, users have searched for alternatives. High fructose corn syrup is a cheaper and attractive alternative, especially for producers of soft drinks who are major users of sweeteners. A key by-product of high fructose corn syrup is corn gluten, meal which can be used as animal feed and which the U.S. both uses domestically and exports, notably to the European Union. Thus, through this round-about channel of public policies and product innovations, what was started by Napoleon and Nelson has come back to European shores.

### **Human migration**

Evidence from DNA has established that all modern humans are descended from common pre-human ancestors living in Africa roughly one million years ago. From that time until a few centuries ago, the most important mechanism for interaction among and integration of the activities of different human societies was undoubtedly people moving from one place to another, predominantly by foot. In the great span of pre-history up to roughly fifty thousand

years ago, humans walked out of Africa and settled across the Eurasian land mass. Settlement of the Americas came later; my mother's native American ancestors probably walked across the land bridge between Asia and North America now submerged under the Bering Strait roughly ten thousand years ago.

Throughout most of historical time, extending back roughly five thousand years, human migration has remained the predominant mechanism of interaction and integration of different societies. Use of the horse and other beasts of burden changed somewhat the technology of human movement (and had a larger effect on methods of warfare), and boats were used to cross water barriers. However, most people most of the time continued to travel by foot. Although migration was slow (by the standards of present speeds of human transport) and often posed considerable risks, it proceeded on a vast scale. Indeed, even for many societies that pursued agriculture (as well as hunting and gathering) migration was a very common phenomenon up until quite recent times—as is testified to by the waves of migration out of Asia and across Europe extending up to roughly 1000 AD.<sup>4</sup>

What fundamental factors were driving these waves of human migration? Relevant technologies (e.g., use of horses) presumably had some effect, and changing tastes may also have mattered somewhat. But, the key factor was surely public policy. In some cases, a society would see that it was exhausting the productive opportunities in a particular location and decide to move on. Also, if one society thought it had the military might to improve its welfare by taking over the territory and other property of one of its neighbors and perhaps also enslave its citizens, it would launch an attack. Seeing discretion as the better part of valor, the society under attack might decide to move on—and perhaps attack somebody else.

For the victor who succeeded in subjugating or driving out a rival society, the result would probably be an improvement in economic welfare. The loser, of course, would lose. The overall result presumably was negative sum. Indeed, in the first work in the entire field now known as social science, Thucydides opens his *History on the*

*Peloponnesian War* with the following observation:

“...it is evident that the country now called Hellas had in ancient times [i.e., well before 400 BC] no settled population; on the contrary, migrations were of frequent occurrence, the several tribes readily abandoning their homes under pressure of superior numbers. Without commerce, without freedom of communication either by land or sea, cultivating no more of their territory than the necessities of life required, destitute of capital, never planting their land (for they could not tell when an invader might not come and take it all away, and when he did come they had no walls to stop him), thinking that the necessities of daily sustenance could be supplied at one place as well as another, they cared little about shifting their habitation, and consequently neither built large cities nor attained to any other form of greatness. Their richest soils were always subject to this change of masters... The goodness of the land favored the enrichment of particular individuals, and thus created faction which proved a fertile source of ruin. It also invited invasion.”

This ancient observation remains highly relevant today. It reminds us that good governance at the national and international level—especially maintenance of reasonable security for peoples’ lives and property—is essential for economic progress. It also reminds us that not all forms of economic interaction among different societies are necessarily beneficial. Globalization by means of the sword, the gun boat, or the slave ship is very different from globalization through voluntary movements of people, goods, services, and physical and financial assets.

Turning to human migration in more recent times, it is useful to distinguish between mass migrations which have continued to occur in response to wars and political and social turmoil, and migrations of individuals and families undertaken primarily for economic reasons. Of course, the two categories are not completely distinct; individual and family decisions about migration are often affected by both economic and non-economic factors. Nevertheless, events such

as the mass migrations in Europe that occurred during and immediately after World War II clearly reflect different fundamental factors than those that were primarily at work in influencing migration to the United States during the past two centuries.

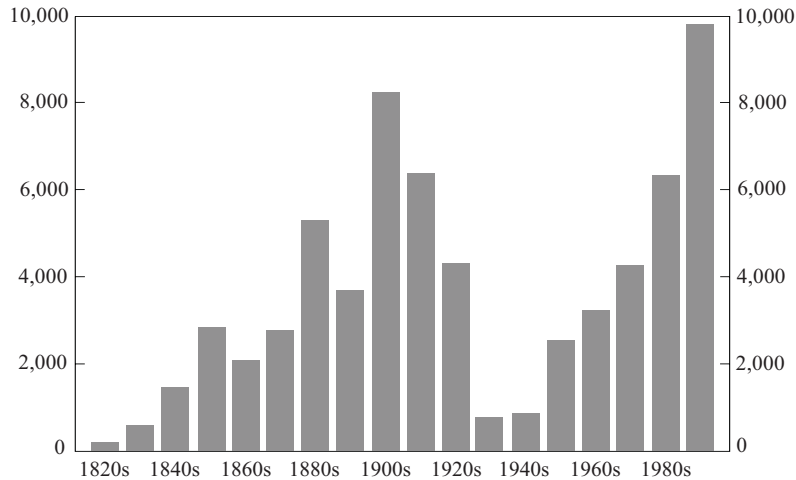
As the noted historian Oscar Handlin observed, America is a nation of immigrants. The greatest surge of immigrants came during the period from the end of the Civil War up to the start of World War I, especially during the first decade of this century; see Charts 1 and 2. Economic considerations, including the cost of transportation mainly explain why immigration was particularly high during this period, with fluctuations in annual immigration flows reflecting (with a short lag) business cycle conditions in the United States.

Even in the early part of the 19th century, the United States was, relatively, a rich country. Average per capita income was roughly comparable to that in England, but the average American worker and his family probably lived better than the average English working family. The gap between America and much of the rest of Europe was substantial. However, travel from Europe to America was neither cheap, nor fast, nor without risks. A sailing ship could easily take a month to make the voyage. During colonial times, if a poor man wanted to immigrate, he could secure passage by agreeing to become an indentured servant, usually for five to seven years.

By the middle of the 19th century, the cost, speed, and safety of human transport across the Atlantic had all progressively improved, especially with the replacement of wooden sailing vessels by iron-made steam ships. These improvements in passenger transportation continued through the 19th and into the 20th century. By 1907, when my father's family migrated from Paris to New York, the cost of passage was down to a couple of months' wages. Indeed, my grandmother Marie Noel earned sufficiently good wages as a skilled seamstress for high fashion houses in New York (where speaking French was an important advantage), and was sufficiently suspicious of American doctors that she sailed back to France in 1908 to give birth to her fourth son before returning to live out the rest of her life—generally quite happily—in America. Some of my father's



**Chart 1**  
**United States Immigration: Total**  
**(Thousands per decade)**

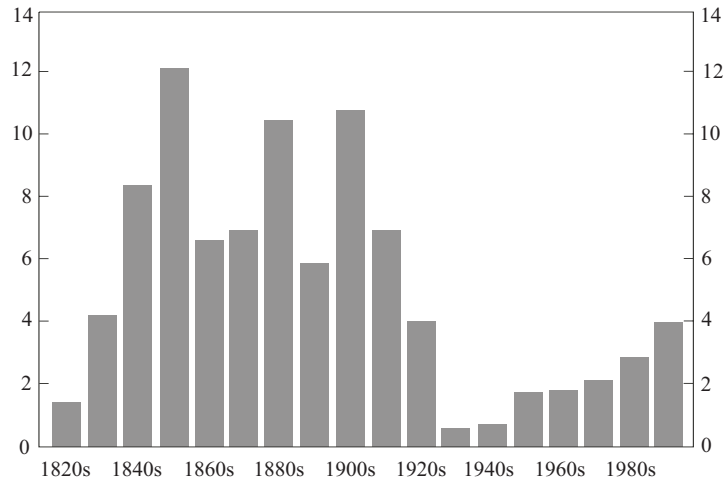


Source: U.S. Department of Commerce, Bureau of the Census.

Italian relatives and friends also made trips back and forth between Europe and both the United States and Argentina. A couple of them, after experience in the New World, returned permanently to Italy. Beyond these anecdotes, there is evidence of significant back and forth movement of people between Europe and the Americas in the period shortly before World War I.

This phenomenon of back-and-forth movement is significant. It suggests that by no later than the early part of this century, the costs and risks of transportation had fallen to the point that (in contrast to earlier times) they were no longer a substantial factor in economic decisions about migration. Also, this reduction in transportation costs probably interacted with tastes in a way that enhanced the likelihood of migration. Even if, as is often the case, one knows family or friends who have migrated to a new country and culture, there must be uncertainty and concern about adapting to a new environment. If

**Chart 2**  
**United States Immigration as a**  
**Percent of Resident Population**



Source: U.S. Department of Commerce, Bureau of the Census.

the decision to migrate is seen as practically irreversible, deterrence to migration is relatively high. If the cost of reversal is comparatively low, it is possible to experiment and see whether one's tastes are compatible with or adaptable to the new environment.

Undoubtedly, the transportation costs of migration have continued to decline since World War I. Why has the pace of immigration into the United States slowed? For migration from Europe, the answer is partly that income differentials have narrowed and so too have the economic and non-economic incentives for migration. However, economic incentives for migration to the United States (and most other industrial countries) from developing countries remain very large. Here, it is clear that public policies restricting migration—even though not fully effective—are the key reason why migration has declined from the high rates prevailing before World War I. Indeed, for the United States, there was no restriction on

inward migration until the Chinese Exclusion Act of 1882 (adopted because of domestic political opposition, especially in California and other western states, to further immigration of Chinese laborers for railroad construction and other work). General restrictions on immigration from other countries did not come until the National Origins Act of 1924. Interestingly, as will be discussed further below, enactment of this highly restrictive measure was part of the general retreat of the United States into isolationism during the inter-war period. This retreat, which was not limited only to the United States, reflected a general shift in tastes toward opposition to many forms of involvement and interaction with foreign countries.

### **Trade in goods and services**

Traditionally, economists tend to focus on trade in goods and, to a lesser extent, services as the key mechanism for integrating economic activities across countries and as a critical channel (but not the only important one) for transmitting disturbances between national economies. Indeed, in the economic theory of international trade (specifically the Heckscher-Ohlin-Samuelson theory described in most textbooks), trade in goods is seen as a substitute for mobility of factors of production. Under certain restricted conditions, which do not apply completely in practice, the theory says trade in the outputs of production processes may be an essentially perfect substitute for mobility of factors, with the result that factor returns are equalized internationally—i.e., factor price equalization is achieved—without the necessity for factors to move internationally to achieve this equalization.<sup>5</sup>

If the conditions for factor price equalization did apply, there would be no economic benefit from international mobility of factors of production. Full economic efficiency could be achieved exclusively through trading outputs.<sup>6</sup> A key reason why the conditions for factor price equalization do not fully apply is because of barriers to trade in outputs that effectively prevent the equalization of relative output prices at different locations. These barriers take two forms: natural barriers to trade in the form of transportation costs and also costs of information about product prices and availabilities at different

locations; and artificial barriers to trade arising from tariffs, quotas, and other public policy interventions.

Indeed, even if the broader conditions for factor price equalization (e.g., identical technologies with constant returns to scale) and, consequently trade in goods alone (without factor mobility) is not sufficient to achieve full international economic integration, a focus on natural and artificial barriers to trade is still important in assessing the extent to which international economic integration through trade achieves as much as is possible through this channel. Specifically, if there were literally no natural or artificial barriers to trade in goods or services, then the relative prices of all goods and services would be equalized everywhere, and integration through the channel of trade would be perfect and complete. In practice, of course, there are important natural and artificial barriers to trade which preclude such perfection.<sup>7</sup> In general, the higher the barriers to trade are, the lower the degree of international integration through trade will be, and conversely. Thus, it is relevant to consider what has been happening to barriers to trade as a means of assessing what has been happening to international economic integration through this important channel.

The development of ocean-going sailing vessels beginning in the late 15th century expanded the horizons for trade to a truly global scale. However, despite gradual and cumulatively substantial improvements in transportation technology, during the era of sail, high sea transportation costs (including risks from piracy or misadventure) generally remained an important barrier to trade over substantial distances. For most goods, shipping by land for more than a few score miles was prohibitively expensive.<sup>8</sup> Shipping by water across the Atlantic or, even more so, between Europe and Asia was mainly restricted to goods with high ratios of value to weight and substantial disparities in relative prices between distant trading locations. Unlike recent times when there is a good deal of two-way intra-industry trade in very similar products, trade over long distances consisted primarily of products that were not produced domestically or of payment flows of gold and silver. Gradually, as sailing vessels became larger and piracy and other hazards to

ocean-borne commerce were reduced, ocean-borne shipping costs did decline significantly and longer-distance trade expanded as a result. Nevertheless, well into the 1800s, transportation costs remained an important natural barrier to global trade.

The invention and development of steam-powered iron ships during the second half of the 19th century further reduced the costs of ocean shipping. By the end of the century, the cost of shipping a ton of cargo across the Atlantic was probably less than one-fifth of what it had been at the start of the century.<sup>9</sup> This reduction in shipping costs contributed importantly to the expansion of world trade and to the range of products participating in that trade.

Artificial barriers to trade in the form of import tariffs and other public policy interventions have a very long history. No doubt, there has always been some interest in such measures as means of providing protection to domestic producers (often including monopolists and cartels) from foreign competition. Owners of warehouses in ancient Rome, for example, supposedly objected to the construction of the new harbor at Ostia, which would improve the city's ability to deal with food shortages by increasing imports from around the Mediterranean. However, raising revenue for the state probably remained the most important reason for the imposition of tariffs until the 19th century. In the United States, in particular, tariffs were generally the most important source of revenue for the federal government up to World War I.

Despite the continuing importance of revenue as a reason for imposing tariffs, it appears that interest in these measures as a means of providing protection to domestic producers increased as natural barriers to trade from transportation costs declined and as the revolution in manufacturing technology created important new competitive threats to more traditional and higher cost producers. Interestingly, the tariff proposed by Treasury Secretary Alexander Hamilton in President Washington's first administration was intended both to raise much needed revenue for the new federal government and to provide protection to domestic manufacturers. Manufactured products typically had quite high ratios of value to weight,

and even the quite high transatlantic shipping costs of the 1790s offered comparatively little natural protection for American producers of such products.

By the end of the 19th century, ocean shipping costs for high-valued products like most manufactures had generally declined to the point that they were no longer a substantial natural barrier to trade among the industrialized countries bordering the Atlantic.<sup>10</sup> Import tariffs imposed by most of these countries—except for Great Britain which retained a policy of free trade—were, by this stage, generally far more important barriers than transportation costs.

The interwar period witnessed a collapse in the volume of world trade. This collapse reflected both the worldwide depression of economic activity in the 1930s and the widespread and massive increase in tariffs and other trade restrictions during this period. The retreat into protectionism included, and to an important degree was probably stimulated by, two massive increases in tariffs imposed by the United States. The first was imposed just after the end of World War I and was intended as both a revenue measure (to absorb the elimination of the wartime income tax and to help pay off debts accumulated during the war). The second was the infamous Smoot-Hawley tariff of 1930, which must be seen largely as an effort of protectionism.

Since World War II, the world economy has enjoyed a remarkable era of prosperity that has spread quite broadly, but not universally, across the globe. During the past five decades, real world GDP has risen at somewhat more than a 4 percent annual rate, with real GDP in developing countries (as a group) growing in per capita terms at about the same pace as the industrial countries. The result has been that real living standards, as measured by real per capita GDP, have improved on average about three-fold in just half a century; see Table 1. During this era of remarkable economic growth, world trade in goods and services has expanded at nearly double the pace of world real GDP. As a result, the volume of world trade in goods and services (the sum of both exports and imports) rose from barely one-tenth of world GDP in 1950 to about one-third of world GDP in 2000. By this measure—and by others as well—there has, indeed, been an increase

**Table 1**  
**Regional GDP per Capita**

	1870	1900	1913	1950	1973	2000
Western Europe	2,110	3,092	3,704	5,126	12,289	20,213
United Kingdom	3,263	4,593	5,032	6,847	11,992	19,704
Areas of Western Settlement	2,440	4,022	5,237	9,255	16,075	26,309
Southern Europe (including Turkey)	1,108	1,572	1,750	2,021	6,015	9,853
Eastern Europe	1,085	1,373	1,690	2,631	5,745	4,236
Eastern Europe (excluding USSR)	1,171	1,610	2,028	2,287	5,133	3,638
USSR	1,023	1,218	1,488	2,834	6,058	4,522
United States	2,457	4,096	5,307	9,573	16,607	27,272
Latin America	760	1,077	1,439	2,487	4,387	5,495
Asia	580	681	742	765	1,801	4,359
Asia (excluding Japan and China)	620	663	727	751	1,422	2,283
Japan	741	1,135	1,334	1,873	11,017	20,616
China	523	652	688	614	1,186	6,283
Africa	480	500	575	830	1,311	1,311
World	895	1,263	1,539	2,138	4,123	5,997

Note: All data up to and including 1973 are from Maddison, *Monitoring the World Economy*. The figures for the year 2000 were computed by applying growth rates of real per capita GDP at WEO purchasing power parities to the Maddison data for 1990.

Source: Angus Maddison, *Monitoring the World Economy 1820-1992*.

in the degree of global economic integration through trade in goods and services during the past half century.

The two fundamental factors that appear to have driven this increasing global economic integration are continuing improvements in the technology of transportation and communication and a very substantial, progressive reduction in artificial barriers to international commerce resulting from public policy interventions.

For transportation, the most dramatic improvements have been for air cargo, which except for airmail, did not exist as a commercially important phenomenon fifty years ago. Now, for a wide array of products from fresh flowers to electronic components to airplane parts, air cargo is the speedy and cost-effective means of international transport. For some of these products, international trade would not be feasible without comparatively cheap air cargo. Also, it is clear that many modern production management practices (including just-in-time inventory techniques utilized by different divisions of multinational corporations) are heavily reliant on the use of air cargo.

Ocean shipping costs have fallen substantially in the past half century, perhaps by as much as a factor of four or five. Oil tankers of roughly 10,000 tons displacement have been replaced by supertankers of up to 500,000 tons, with no increase in crew size. Merchant steamers of 5,000 to 8,000 tons have been replaced by containerized cargo carriers displacing 100,000 to 150,000 tons. Loading and off-loading by large crews of longshoremen has been virtually eliminated. Integration with the domestic transportation networks of road and rail is speedy, efficient, and less prone to disruption.

Land transportation costs are directly important for a good deal of international trade between contiguous countries and indirectly important for connecting international trade with domestic production and consumption. Land transportation costs (trucking and rail) have clearly declined during the past half century, although proportionately much less than for air cargo.

Communications costs—for voice, text, and data—have dropped enormously in the postwar era, and are continuing to fall precipitously under the influence of rapid improvements in information and communications technology. Although not often given much attention in traditional trade theory, this has had broad implications for international trade, as such trade generally necessitates a good deal of communication between actual and potential buyers and sellers and a variety of middlemen and facilitators. Probably the most



important effect of improvements in communications has been felt on trade in services. For a variety of services, modern communications technology makes it possible and cost efficient to separate production and use in ways that were not previously feasible. Design of new computer chips can be done in Silicon Valley and implemented in production facilities in East Asia. Software can be written under contract in India or Ireland and e-mailed back to the United States. Doctors can diagnose patients using transmitted MRI images and other data. Methods are even being created whereby operations can be performed robotically by a specialist surgeon thousands of miles away from his patient. Financial services (to be discussed below) are a particularly important area where modern communications technology is helping to transform the arena for international trade in services. More broadly, the decline in communications costs is surely one of the important reasons why the United States exports of non-factor services in recent years has been growing more rapidly than either GDP or merchandise exports (see Chart 3).

For government-imposed artificial barriers to international trade, the postwar era has undoubtedly seen a dramatic reduction. The extent of the reduction is hard to measure with great precision. The disruption of the war and of postwar reconstruction and the widespread use of exchange restrictions and other non-transparent policies during and for some time after the war are one special set of problems. Resort to import quotas, voluntary export restraints, and other non-tariff interventions in more recent years is another difficulty. Also, trade flows undoubtedly respond with lags, perhaps quite significant lags, to changes in the level of barriers to trade. Nevertheless, assuming that there was a significant overhang effect from the war and war time measures that tended to restrict trade shortly after the war, and taking account of the decline in tariff rates for the main industrial countries since the war to very low levels today, it is possible that levels of protection for domestic manufacturing industries in industrial countries have declined by as much as 90 percent since World War II. This includes the fact that tariffs have been eliminated within the European Union and within NAFTA and that inflation has eroded the ad valorem equivalent of many specific tariffs. While significant import protection remains for industrial countries,

**Chart 3**  
**United States: Exports of Non-Factor Services**  
 (As a percent of merchandise exports)



Source: WEFA.

it is concentrated on a few key sectors, most notably agriculture, and also textiles and a few manufactured goods. For developing countries, the situation is more mixed and levels of protection generally remain higher than those in the industrial countries. However, during the past twenty years there has been a significant move by most economically important developing countries to liberalize their trade regimes. Taking account of the fact that, measured at market prices and market exchange rates, developing countries account for only about one-fifth of world output and world trade, it is probably not much of an exaggeration to say that artificial barriers to international trade from government policy interventions have fallen by between 80 and 90 percent since World War II.<sup>11</sup>

This is obviously an enormous accomplishment in the direction of public policies that seek to secure the benefits of a more efficiently integrated world economy. How much the of rise in the volume of

world trade relative to world GDP might plausibly be explained by this accomplishment? A back-of-the-envelope calculation sheds some light on this question. Suppose that the combination of the reduction in artificial barriers to trade from government policies (the main factor) and reduction in natural barriers to trade (a much more modest factor in the postwar era) have reduced the total barriers to trade from an effective average of 35 percent to an effective average of only 5 percent. Suppose that these figures apply to the United States. Standard estimates of trade elasticities (see Goldstein and Khan (1984)) suggest that the volume of imports would rise by roughly 2 percent of U.S. GDP. This is much smaller than the actual increase in the share of imports in U.S. GDP from under 5 percent in 1950 to nearly 15 percent in 2000. For more open economies with high initial ratios of trade to GDP, the estimated increases in the trade to GDP ratio would be larger than for the United States, but the actual trade share gains are also generally larger.

Part of the resolution of this conundrum comes from recognizing that when trade barriers are reduced all around the world economy, there is a mutually reinforcing effect not captured by considering each country individually. U.S. trade expands not only because U.S. trade barriers are reduced, but also because other countries' barriers are reduced as well. Taking account of this interaction effect and relying on standard estimates of relevant elasticities, the assumed reduction in artificial and natural trade barriers might plausibly explain as much as a doubling in the volume of world trade relative to world GDP; that is, an increase in the share of imports from 6 percent to 12 percent of world GDP or an increase in the combined share of imports and exports from 12 percent to 24 percent of GDP. The actual increases in these world trade shares, however, amount to a tripling—which is beyond the range of reasonable results using standard estimates of relevant elasticities.

Three things might plausibly explain the substantial remaining gap. It is possible that because of the disruptions of the war and its aftermath and the policies pursued before, during, and shortly after the war, that the effective barriers influencing volumes of trade in 1950 were much higher than has been assumed and that, correspond-

ingly, the reduction in these barriers should be substantially greater than the assumed average effective reduction from 35 to 5 percent. Alternatively, it is possible that even though the empirical estimates are quite robust, the relevant elasticities are actually a fair bit larger than the consensus suggested by the bulk of empirical studies. The general tendency for estimates of price elasticities to be low (Stigler's Law) adds some comfort to this possibility. Then, there is the possibility that the standard theory linking trade volumes to relative prices and income (or expenditure) levels leaves out something important, especially in a longer-term context. The fact that the so-called "gravity" model performs relatively well in explaining bilateral trading volumes cross-sectionally may reinforce this explanation. Specifically, if trade between two countries tends to rise proportionately with respect to each of their economic sizes and diminish with the distance between them, then the suggestion is that doubling the size of both economies should raise their bilateral trade by a factor of four rather than by a factor of two.

Regardless of which, if any, of these explanations is correct, the conclusion remains that the massive reduction in artificial barriers to trade and the substantial, although quantitatively less significant, reduction in natural barriers to trade in the postwar era contributed very importantly to increasing global economic integration.

Surprisingly, however, the extent of global economic integration through international trade today is, by some key measures, not much greater than it was a century ago. Specifically, the rising shares of trade relative to GDP in the postwar era have only just recently restored these shares to about where they were just before World War I. This seems surprising because artificial barriers to trade would appear, on balance, to be lower than they were at that time, and natural barriers to trade are surely much lower than they were then. However, as discussed by Bordo, Eichengreen, and Irwin (1999) and summarized in Crafts (2000), the result is less surprising when account is taken of the massive change in the structure of national outputs during the past century. Around 1900, roughly two-thirds of GDP was in the goods-producing sector of the typical industrial country. Now that situation is reversed, and roughly two-thirds of

GDP is in the service sector of the typical industrial country (with a somewhat higher services share in the United States).<sup>12</sup> If trade shares are measured as ratios of international trade (exports plus imports) of goods to the output—or even more so, the value added—of goods production, then those shares are soon to have increased significantly from a century ago. This supports the view that international integration of markets for goods is significantly greater today than a century ago.

Looking forward, how might the fundamental factors of technological developments affecting natural barriers to trade and of public policies affecting artificial barriers to trade be expected to evolve and, thereby, to influence the extent of global economic integration through international trade in goods and services? Almost surely, technological improvements will continue to reduce the costs of transportation and communication, both domestically and internationally. For transportation, because costs cannot go negative, further absolute cost reductions cannot generally be as large as what has been achieved in the past century. Even in proportional terms, it seems likely that the pace of advance will slow from the pace of the past century. In fact, during the past quarter century, while there have been continuing efficiency gains in transportation, the main technologies of land, sea, and air transport have not changed. Nevertheless, as the natural barriers to international trade for most goods arising from transportation costs are already quite low, technological limits on the likely pace of future cost reductions will probably not be very important, at least for the industrial countries. For developing countries, where the infrastructure of modern transportation is generally less well developed, opportunities for reductions in transportation costs that would enhance economic integration (both within the domestic economy and internationally) are clearly greater.

For communications (as discussed further below), the situation is very different. A technological revolution is under way and appears likely to continue for some time. Costs of communication, domestic and international, have fallen rapidly; and these declines also seem likely to continue. International trade surely benefits from improvements in communications. As previously discussed, the areas likely

to benefit the most are those that rely particularly heavily on communications, with financial services being an important example.

Concerning the future of public policies toward trade, the successful postwar effort to reduce trade barriers has virtually eliminated most significant restrictions on trade in most goods among industrial countries, with notable exceptions for a number of agricultural products and a few manufactured products. To make further meaningful progress, the industrial countries need to address the few remaining hard cases (especially agriculture) in goods trade and deal with a complex of restrictions that artificially suppress opportunities for trade in services—trade that is increasingly being made feasible by advances in communications and other technologies. For developing countries, the agenda includes both reducing import restrictions that remain relatively high for products where industrial country barriers are already quite low and securing from the industrial countries reductions in barriers against exports of products for which developing countries have an important comparative advantage.

### **International capital movements and trade in financial services**

For the Jackson Hole Conference of 1993, Morris Goldstein and I were asked to write a paper on, “The Integration of World Capital Markets.” While much has happened during the past seven years, particularly in global financial markets, events have been remarkably kind to that earlier paper, and its main conclusions are worth repeating.

... we have surveyed the available empirical evidence on the integration across national capital markets. We have found that these international links have been increasing over the past decade—especially for high-grade, financial instruments traded actively in the wholesale markets of major financial centers. Capital markets in developing countries too are becoming more closely integrated with markets in the rest of the world, although they have progressed less far in that direction than the industrial countries.

It is still way too early to speak of a single, global capital market where most of world saving and wealth are auctioned to the highest bidder and where a wide range of assets carry the same risk-adjusted expected return. Some important components of wealth (like human capital) are scarcely traded at all, and currency risk, the threat of government intermediation (especially during periods of turbulence), and the strong preference for consuming home goods and investing in more familiar home and regional markets, still serve to restrict the range and size of asset substitutability. But the forces making for stronger arbitrage of expected returns are already powerful enough to have made a large dent in the autonomy that authorities have in the conduct of macroeconomic and regulatory policies. When private markets, led by the increasing financial muscle of institutional investors, reach the concerted view (rightly or wrongly) that the risk/return outlook for a particular security or currency has changed, those forces will be difficult to resist....

We see little in the factors underlying the evolution of international capital markets to suggest that this increased clout of private markets will reverse itself in the future. Quite the contrary: international diversification is still in its adolescence; the costs of gathering, processing, and transmitting information and of executing financial transactions will probably decline further with advances in technology; the pace of financial liberalization (including cross-border ownership) and innovation continues unabated in most industrial countries; the pool of savings managed by professionals is growing (as private pension schemes supplement public ones, and as saving shifts from the banking sector into mutual funds); and the same reforms that reduce systemic risk (such as improvements in the payments and settlement system) often also enhance the private sector's capacity to redenominate the currency composition of its assets and liabilities at short notice.

We would *not* go so far as to suggest that the growth and

agility of private capital markets now makes it unrealistic to operate a fixed exchange rate arrangement durably and successfully. But we do believe that these factors have made the conditions for doing so more demanding....

With the benefit of perfect hindsight, it is not hard to identify instances over the past decade or so when international capital flows (like domestic ones) did not pay enough attention to fundamentals. ... Nevertheless, we see no basis for concluding that private capital markets usually “get it wrong” in deciding which securities and currencies to support and which ones not to. ... We therefore see merit in trying to improve the “discipline” of markets so that it is more consistent and effective rather than in trying to weaken or supplant the clout of markets.

Toward this end, two conditions (in addition to open capital markets themselves) are worth emphasizing. First, markets must be aware of the full magnitude of the debtor’s obligations if they are to make an accurate assessment of his debt-servicing obligations and capacity. The lower is the range and quality of that information, the more likely is it that “contagion effects” will be present, since lenders will find it difficult to separate better credit risks from weaker ones. More comprehensive reporting of off-balance sheet borrowing (by private firms and sovereigns alike), greater transparency in the obligations of related entities (in conglomerates and the like), greater international harmonization of accounting standards more generally, and more prompt disclosure of losses, would all be helpful. Second, market discipline cannot be effective if market participants believe that the borrower will be bailed out (one way or another) in the case of an actual or impending default. When there is such a perception of a bailout, the interest rate paid will reflect the creditworthiness of the guarantor—not that of the borrower—and there will be little incentive either for the borrower to rein in his errant behavior or for lenders to monitor and appraise the borrower’s behavior in making loans....



None of this implies that authorities should be indifferent to the potential prudential and systemic risks that may be associated with the trend toward global capital market liberalization and innovation. ... The message however should not be to try and halt financial liberalization and the international integration of capital markets but rather to accompany that liberalization and integration with a strengthening of the supervisory framework that permits the attendant risks to be properly priced and that encourages risk management programs to be upgraded.

As the debt crisis of the 1980s so powerfully illustrated, these issues of the proper pricing and management of risk in international capital markets are of deep concern to developing countries, as well as to industrial countries. ... the changing character of much of the capital flow to developing countries—away from bank loans and toward bonds, equities, and direct foreign investment—suggests enhanced flexibility and resiliency of the international financial system in dealing with any future problems.

What should be added to these conclusions from Mussa and Goldstein (1993)? I would stress four points relatively briefly and develop one key issue at somewhat greater length—namely, the integration of the world economy through the globalization of the financial services industry.

First, as suggested in Mussa and Goldstein, during the past seven years, financial markets, especially wholesale markets for high-grade instruments, have tended to become more tightly linked internationally, especially among the industrial countries and also including many important emerging market economies. Most notably and as a clear example of the influence of public policy on economic integration, the advent of EMU (and the anticipation of this event) has eliminated exchange rate fluctuations among the eleven participating countries and has led to a dramatic reduction in interest rate spreads and in the volatility of these spreads. A unified market for bank liquidity emerged very rapidly once EMU started, with the larger

banks in each country bidding aggressive for liquidity auctioned by the European Central Bank (ECB) and acting as wholesalers of liquidity to second-tier institutions; these developments are discussed in the IMF's reports on *International Capital Markets* for 1999 and 2000. For the industrial countries, the only significant suggestion of any weakening in international capital markets linkages relates to Japan. When concerns about the financial condition of many large Japanese banks arose during 1997-1998, the "Japan premium" paid by large Japanese banks to borrow on international banking markets spiked up; see Chart 4. Government measures to help re-capitalize and restructure Japanese banks was subsequently instrumental in reducing the Japan premium. Nevertheless, many Japanese banks have substantially scaled back their involvement in international financial markets. Also, (as described in the IMF's report on *International Capital Markets* for 2000) there are some indications of a degree of detachment of some Japanese financial markets, such as the market for yen-based OTC derivatives, from global financial conditions.

For emerging market economies, dramatic evidence of their linkage to global financial markets was provided during the tequila crisis of 1995 and especially during the Asian/Russian/LTCM/Brazilian crises of 1997-1999. It is noteworthy that the Asian crisis, which effectively began with the attack on the Hong Kong dollar and stock market in mid-October 1997, was preceded by a massive surge in gross private capital flows to emerging market countries and a deep compression of spreads for emerging market borrowers;<sup>13</sup> see Chart 5. These developments signal a shift in tastes of global investors either toward lower assessments of the risks of investing in emerging markets or toward greater acceptance of such risks. With the onset of the Asian crisis, there was an apparent sudden shift of tastes of global investors away from emerging market risks, especially for Asian emerging market economies; and, as gross private capital flows dropped precipitously (especially for Asian emerging markets), spreads for emerging market borrowers spiked upward. In this episode and in later episodes of the series of crises during 1997-1999, many emerging market countries lost effective access to global financial markets. In many cases, the loss of access proved relatively

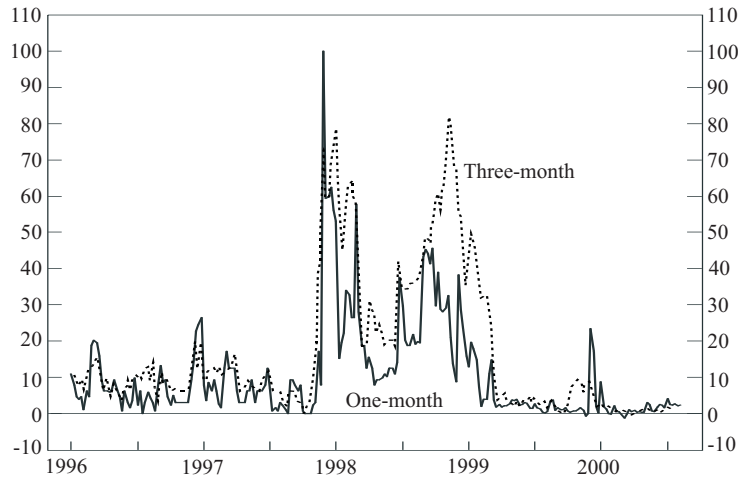
**Table 2**  
**Emerging Market Economies: Net Capital Flows<sup>a</sup>**  
 (Billions of U.S. dollars)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total																				
Private capital flows, net <sup>b</sup>	2.1	44.6	10.8	.2	-14.0	7.8	16.9	13.3	12.0	28.0	41.9	97.6	106.3	127.4	141.3	213.7	225.6	115.9	69.4	68.2
Private direct investment, net	6.7	12.7	10.7	8.4	8.9	8.8	9.4	13.6	17.8	14.6	18.9	31.4	34.5	58.0	80.8	94.9	117.4	140.5	150.8	153.3
Private portfolio investment, net	.2	2.3	6.2	9.4	3.7	7.7	1.3	6.0	-9.8	11.0	-1.9	25.9	63.8	77.9	105.2	41.1	80.0	40.3	.7	5.9
Other private capital flows, net	-4.8	29.7	-6.1	-17.6	-26.5	-8.8	6.3	-6.3	4.0	2.4	24.9	40.3	8.0	-8.5	-44.6	77.7	28.2	-64.8	-82.0	-91.0
Official flows, net	26.7	30.2	34.3	46.8	36.4	28.9	29.0	21.3	14.4	23.8	22.1	42.1	25.7	49.2	4.8	15.8	2.1	52.7	54.5	12.3

<sup>a</sup>Net capital flows comprise net direct investment, net portfolio investment, and other long- and short-term net investment flows, including official and private borrowing. Emerging markets includes developing countries, countries in transition, Korea, Singapore, Taiwan Province of China, and Israel. No data for Hong-Kong SAR are available.

<sup>b</sup> Because of data limitations, "other net investment" may include some official flows.

**Chart 4**  
**Japan Premium**  
**(In basis points)**

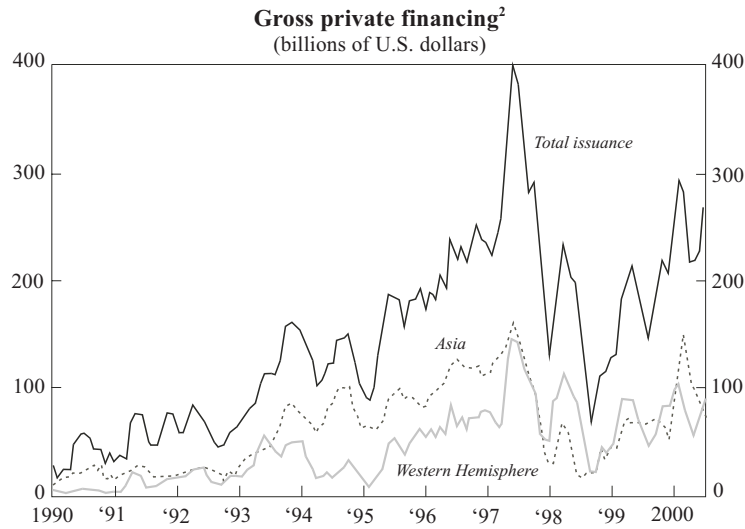
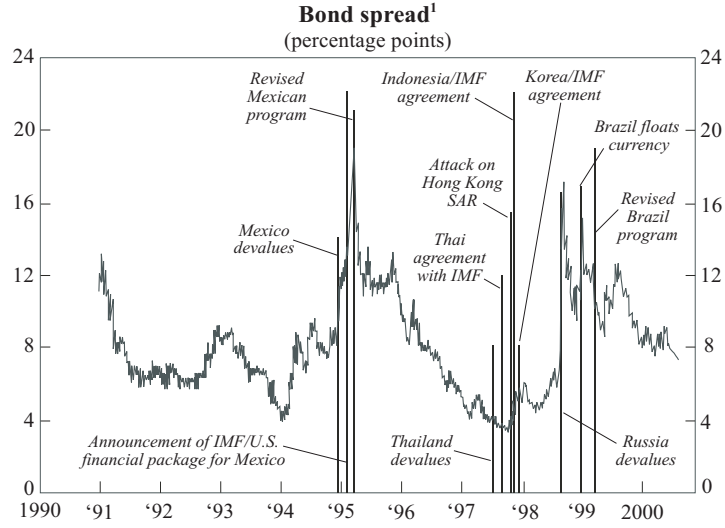


Source: Bloomberg, L.P.

brief—in contrast to the experience of many Latin American countries during the debt crisis of the 1980s—but in a few cases access has not yet been restored. Consistent with Mussa and Goldstein, while some progress has been made, the linkage of developing countries to global financial markets remains weaker and more tenuous than for industrial countries.

Second, although not original to Mussa and Goldstein, the observation that for a country highly open to private international capital flows, the policy requirements for successful operation of a pegged exchange rate regime are quite demanding has certainly proved prophetic. For Mexico in the tequila crisis, for Thailand, Malaysia, Indonesia, and Korea in the Asian crisis, for Russia in 1998, and for Brazil in 1999, the combination of a pegged exchange rate regime with a relatively high degree of openness to private international capital flows proved unsustainable and contributed to substantial

**Chart 5**  
**Financing Conditions for Emerging Markets**



Sources: Bloomberg, L.P.; and IMF staff calculations.

<sup>1</sup> J.P. Morgan's Emerging Market Bond Index (EMBI) spread relative to the theoretical U.S. Zero-coupon yield curve, and secondary market yield spreads on U.S. Dollar-denominated Eurobonds.

<sup>2</sup> Excludes interbank flows. Three-month moving averages; annualized.

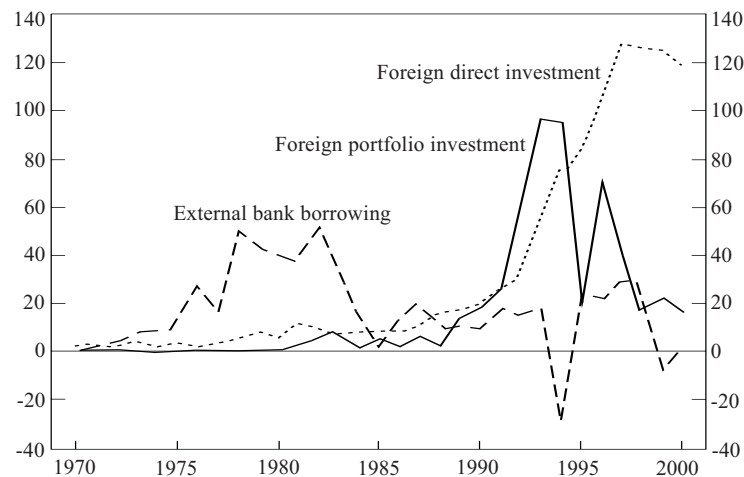
financial crises. Countries that supported their pegged exchange rate policies with firm commitments to consistent monetary policies and maintained well-capitalized and well-regulated banking systems—notably Argentina and Hong Kong—were able to weather recent crises without collapses in their policy regimes. However, emerging market countries that maintained more flexible exchange rate regimes—such as Singapore, Taiwan Province of China, South Africa, and Mexico (after 1995)—were generally better sheltered from the effect of recent financial crises.

The general lesson here (and also earlier from the ERM crises of 1992-1993) appears to be that the public policies that support the highest degree of international capital market integration—rigidly pegged exchange rates and free capital mobility—are feasible, but only if other key macroeconomic policies, most importantly national monetary policies, are subordinated to this goal of financial integration. Where the requisite degree of subordination is not feasible or not desirable, a choice of public policy orientations must be made. For some countries—notably those that have comparatively weak financial systems and have in place systems of controls on private capital flows—maintenance of some restrictions on private capital flows (at least for some period of time) may be a desirable option that allows greater stability of the exchange rate.<sup>14</sup> For the major currency countries and regions (the United States, the euro area, and Japan) where unrestricted capital mobility is the established norm, and where pursuit of a common monetary policy appears unlikely to be consistent with key goals of macroeconomic stability, floating exchange rates will, and should, continue to prevail.

Third, in light of the experience of the past seven years, the favorable assessment of the growing role of and prospect for direct investment flows to emerging market economies appears justified. But the relatively sanguine assessment of changes in the composition of portfolio flows and of the “enhanced resiliency of the international financial system in dealing with any future problems” seems somewhat premature. While it is true that flows of foreign direct investment to developing countries have expanded considerably during the 1990s and have come to dominate net flows of private capital to these

### Chart 6 Net Flow of Investment to Developing Countries<sup>a</sup> (Billions of U.S. dollars)

Net inflows of foreign investment to developing countries have grown rapidly since 1980, and flows of direct investment have been less volatile than flows of portfolio investment.



<sup>a</sup> Data for 2000 are IMF staff projections.

countries (see Chart 6); and flows of FDI have also proved to be quite stable during recent financial crises. Nevertheless, the international financial system was certainly not free of important problems during the past seven years.

On the positive side, as previously noted, many of the emerging market countries that lost access to global capital markets in recent crises did rapidly regain it—a sign of enhanced resiliency. Also, developments since recent crises (examined in detail in Chapter 3 of the IMF's report on *International Capital Markets for 2000*) are reassuring. Bank lending as a source of finance for emerging markets—which proved quite volatile in recent crises—has continued to decline, while FDI has strengthened further and net portfolio equity flows have recovered. In a number of emerging market countries, domestic debt markets have developed considerably and have become an important source of finance for sovereigns and

corporates. Although the global investor base for emerging market bonds remains somewhat fickle, emerging market equities seem to be gaining more of an independent foothold.

Fourth, the emphasis in Mussa and Goldstein on efforts to improve market discipline through better provision of information, heightened transparency, harmonization of accounting standards, etc., and through avoiding generous bailouts of errant borrowers (and their creditors) appears to have successfully forecast much of the agenda for the recent debate on improving the international financial architecture. Already at this stage important progress has been made in these reform efforts; but much remains to be done on the implementation of reforms. It is still to be seen how much these reforms will improve the performance of the international financial system.

In my view, the main omission from the discussion of global capital market integration in Mussa and Goldstein is the relative lack of emphasis on the globalization of the activities of providing financial services—a phenomenon that is part of the broader revolution in this sector brought on primarily by rapid advances in information and communications technology. The rapid reductions in the costs of storing, accessing, analyzing, and communicating information are both dramatically reducing the costs of producing virtually all existing forms of financial services and creating new products and services (such as many OTC derivatives) that would have been prohibitively expensive with older technologies. At the national level, the structure of the financial services sector is changing as the distinctions that used to exist between commercial banks, investment banks, securities dealers, insurance companies, and other financial service providers become increasingly blurred. At the international level, the same basic forces are driving where financial services are increasingly being provided across national boundaries, and public policies are tending to accommodate and/or facilitate this mechanism of global economic integration.

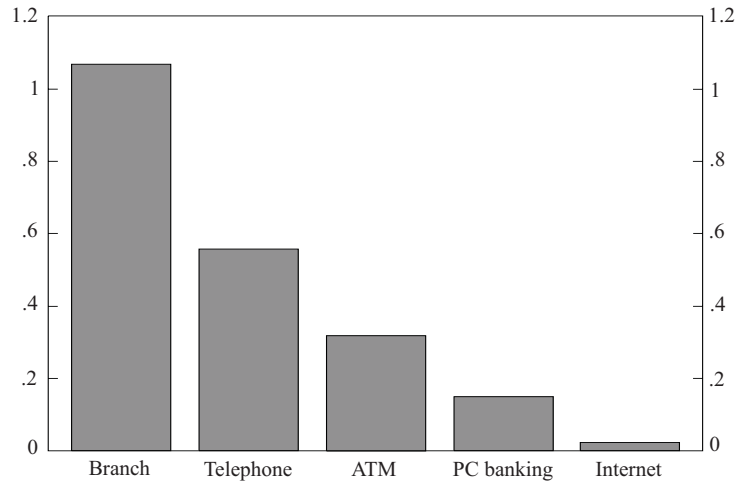
There is no doubt that advances in information and communications technology are the most important technological advance of the past quarter century. In the United States, technological advances in



these areas account for much of the rise in total factor productivity in recent years. As a result of these technological advances, the costs of processing and communicating all forms of information have been all declining very rapidly; i.e., by a factor of two or more within a two-year period. By nature, much of the activity in the financial services industry has to do with the processing and communication of information. It stands to reason, therefore, that the financial services industry would be particularly strongly affected by rapid advances in information and communications technology—and, it has been. This is readily apparent in a number of phenomena.<sup>15</sup> For example, the costs of making stock exchange transactions for both retail and wholesale traders has dropped enormously (and the gap between them has narrowed significantly) during the past twenty years, with the predictable result that there has been an explosion of the volume of transactions and (perhaps somewhat more surprisingly) a large increase in the number of retail investors. The cost of bank transactions at the wholesale and interbank level has also dropped precipitously; and this, among other things, is reflected in the continuing rise in the volume of bank transactions relative to nominal GDP. Some indication of how advances in technology are affecting (and likely to continue to affect) retail banking transactions is suggested by Chart 7.

As information and communications technology has advanced and the costs of doing virtually all forms of financial business have declined, the meaningfulness of the differences associated with different locations or with different sectors of the financial services industry appear to have eroded. This reflects the fact that it is much cheaper now than a few years ago to do financial business over a wider geographic range and over a wider scope of activities. As a consequence, there has been a tendency toward restructuring of institutions in the financial sector in the direction of broader geographic and functional scope. This tendency is apparent in recent efforts to integrate and/or consolidate trading activities on different stock and commodity exchanges. It is also apparent in the restructuring of banking systems and the integration of banks with other types of financial institutions.

**Chart 7**  
**The Internet Slashes the Cost of Transactions**  
 (U.S. dollars)



Source: *Goldman Sachs and Boston Consulting Group.*

Public policy in most countries has been accommodating or facilitating these developments. In the United States, the last restrictions on nation-wide banking have been removed; and, with the passage of the Gramm-Leach-Bliley Act last year, most remaining restrictions on bank holding company participation in the full range of financial services have been removed. In the European Union, under the auspices of directives from the European Commission, the banking sector is becoming more competitive; and the advent of the EMU at the start of 1999 is providing important additional impetus to restructuring in the financial sector. In Japan, partly as a consequence of difficulties of recent years, public policy is also pushing reform and restructuring in the financial sector; see IMF (2000).

Not surprisingly, the same types of changes that have been taking place within the financial service sectors of individual countries have also been occurring internationally—and in response to the

same principal driving force. The advances in information and communication technology that make it efficient to do financial business across a wider geographic and functional scope domestically, also operate across national boundaries. And, the effects are seen, for example, in the efforts to integrate the activities of stock and commodity markets internationally and in the international diversification of a number of leading firms providing financial services. As in the domestic arena, public policies are, by and large, facilitating these developments or at least accommodating them. In particular, seeing the advantages of allowing (sophisticated) foreign financial institutions to provide services in domestic markets, a number of emerging market countries have liberalized or are liberalizing to permit such participation; see IMF (2000).

Going forward, it is clear that advances in information and communications technology that have already been achieved and those that are in the pipeline will continue to drive the evolution of the financial services industry. People will want to take advantage of the opportunities rapid advances in technology allow—in financial services, as well as elsewhere. Public policy can influence, to some degree, the pace and pattern of developments. It can spur or retard them; but it is unlikely to stop them.

At the international level, this implies that we have strong reason to expect an increasing degree of capital market integration in the future. Information and communications costs are a natural barrier to integration of capital markets and financial services—just as transportation costs are for trade in physical goods. As these costs come down, integration should increase.

There is, however, one important worry. Many empirical studies have confirmed the common-sense appraisal of the postwar experience with trade liberalization: Open policies toward international trade are an important factor contributing to stronger economic growth.<sup>16</sup> Similarly persuasive evidence is not available for liberal policies toward international capital flows, particularly for portfolio flows rather than direct investment flows. Indeed, the experience in recent financial crises could cause reasonable people to question

whether liberal policies toward international capital flows are wise for all countries in all circumstances.<sup>17</sup> The answer, I believe, is probably not. High openness to international capital flows, especially short-term credit flows, can be dangerous for countries that have weak or inconsistent macroeconomic policies or inadequately capitalized and regulated financial systems. For such countries, public policy has important challenges to meet in preparing for a world economy that is being driven toward higher degrees of capital market integration.

### **The particular importance of communications**

In many discussions of international economic integration, the focus is on integration through trade and factor movements, both labor and capital. There is, however, clearly another important mechanism through which economic activities in different parts of the world affect each other—namely, through the communication of economically relevant information and technology. It may or may not be true that Marco Polo carried back from China to Italy the concept of noodles, and, thus, multiple forms of Italian pasta were born. The lesson, nevertheless, is clear. It is not necessary to transport large quantities of noodles (by expensive and slow camel caravans) from China to Italy to produce a culinary revolution. It is necessary only to transport the concept of a noodle and an understanding of how noodles are made to have this effect. And clearly, noodles are but one example. International trade and movements of people and capital are undoubtedly important for the spread around the world of the fundamental technological innovations that underlie the broad advance of human productivity—from the use of the wheel through the modern personal computer. Societies that cut themselves off from commerce with the rest of humanity do tend to stagnate. However, the volume of international commerce is probably not the critical determinant of the spread of useful innovations—provided that channels of communication remain reasonably well open.

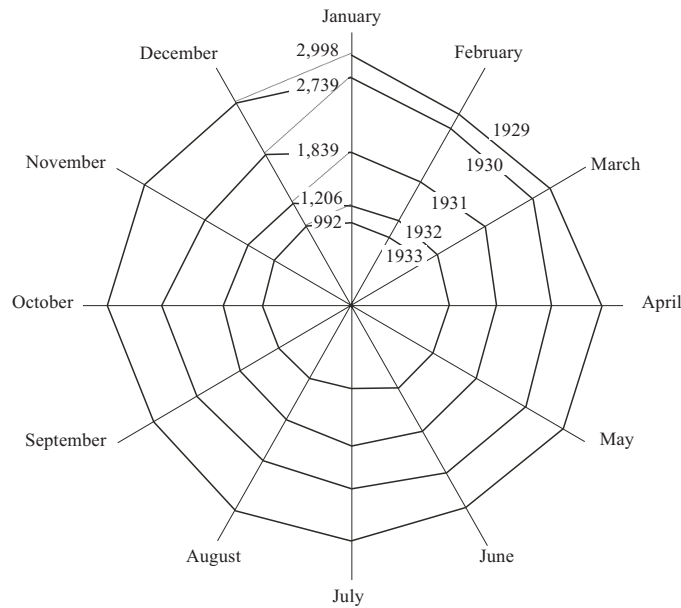
Abraham Lincoln—the only American President to be granted a patent—had a special appreciation of the importance of communication in facilitating innovation:

[I]n the world's history, certain inventions and discoveries occurred, of peculiar value, on account of their great efficiency in facilitating all other inventions and discoveries.... The date of the first [writing] is unknown; ...the second—printing—came in 1436. ...When writing was invented, any important observation, likely to lead to a discovery, had at least a chance of being written down, and consequently, a better chance of never being forgotten; and of being seen and reflected upon, by a much greater number of persons; and thereby the chances of a valuable hint being caught, proportionably augmented. By this means, the observation of a single individual might lead to an important invention, years, even centuries later after he was dead. In one word, by means of writing the seeds of invention were more permanently preserved, and more widely sown. And yet, for the three thousand years during which printing remained undiscovered after writing was in use, it was only a small portion of the people who could write, or read writing; and consequently the field of invention, though much extended, still continued to be very limited. At length, printing came. It gave ten thousand copies of any written matter, quite as cheaply as ten were given before; and consequently, a thousand minds were brought into the field where there was but one before. This was the great *gain*; and history shows a great *change* corresponding to it, in point of time. I will venture to consider *it*, the true termination of that period called “the dark ages.” Discoveries, inventions, and improvements followed rapidly, and have been increasing their rapidity ever since.

If Lincoln was right about this issue (as he was about slavery, but not about tariffs), then the recent and continuing advances in communications promise to have profound effects on innovation across a very broad spectrum and on a global scale. We are seeing the beginnings of this now in the financial services. It promises to be a profound force driving global economic integration in the future.

**Figure 1**  
**Contraction of World Trade, 1929-1933**  
**(Monthly values in millions of U.S. gold dollars)**

Between January 1929 and February 1933, total imports of 75 countries contracted by 69 percent. Since world prices declined during this period, the fall in volume terms, while still large, was slightly less pronounced.



Source: Charles P. Kindleberger, *The World in Depression 1929-1933* (revised edition; Berkeley: University of California Press, 1986).

**A reversal in the trend of increasing global economic integration?**

During the interwar period between World Wars I and II, there was a sharp reversal in the generally rising trend of global economic integration. The volume of world trade contracted sharply. As illustrated in Figure 1, this contraction of world trade was particularly pronounced during the early 1930s and was partly attributable to the general decline of economic activity in the Great Depression. The

decline in world trade, however, was much greater than the decline in economic activity (or in goods production). The rise of protectionism, particularly the Smoot-Hawley tariff imposed by the United States in 1930 and the retaliatory responses to it, clearly contributed importantly to the collapse of world trade. At around the same time, capital market linkages among countries weakened substantially, as the international gold standard collapsed and as several countries led by Nazi Germany began to impose highly restrictive controls on capital movements.

A complex of factors undoubtedly contributed to the general sharp reversal of global economic integration in the interwar period, including especially the economic effects of the Great Depression. Several studies have suggested economic and political economy explanations for this reversal, especially as it relates to developments in the United States; see, for example, Eichengreen (1989) and Irwin and Kroszner (1996). However, I believe that it is not possible to explain an important part of this worldwide phenomenon without recognizing that there was an important change of tastes in the body politic of several key countries away from sympathy to involvement in an economically integrated global economy and toward nationalism and isolationism. In Europe, the tragedy of the Great War and its aftermath explains much of the change. Russia, after the devastation of the war and Bolshevik revolution, was invaded by some of its former allies. Mutual suspicion and hostility between communist Russia and most of the rest of the world was reflected in Russia's economic isolation. In Germany, a bitter defeat and a bitter peace fed a new spirit of nationalism. In the United States, the symptoms of the shift toward isolationism took many forms. The Senate refused to ratify the League of Nations Treaty in 1920. The government took repressive action toward imported political ideologies in the red scare. The Ku Klux Klan was reborn and gained prominence outside of the South, expressing antipathy not only to blacks but also to most things foreign. Prohibition was passed, partly based on campaigns that attributed alcoholism to foreign influences. The National Origins Act sharply restricted foreign immigration. All of this transpired during the Roaring '20s, before the Great Depression; the Smoot-Hawley tariff was also passed before the depression took

hold. From all of these developments, it seems clear that after World War I and partly in reaction to it, many Americans decided that they wanted substantially less involvement with most things foreign.

What are the chances that something similar might happen again? The protesters in Seattle demonstrated that globalization has its detractors; and we have hardly seen or heard the last of them. However, while we need to remain cognizant of the risk that such protests may gain political momentum, I do not believe that the conditions are ripe for a return to isolationism. The plain fact is that the U.S. economy, and the world economy more generally, have prospered enormously under, and partly because of, favorable policies toward international economic integration—policies that have been championed by the United States in the post World War II era. Despite occasional difficulties, such as the recent emerging market financial crises, nations around the world are not seeking to withdraw from the increasingly integrated global economic system. Rather, those that are not yet full participants are generally seeking to become so.

### **The end of empire**

In the public park above the great Rheingau vineyard near Rudesheim, there stands a large, rather ugly statue commemorating Prussia's victory in the Franco-Prussian War of 1870-1871. Notably, this was the last important European war in which the victor ended up better off because of the conflict. The defeat of the French, after earlier victories over the Danes and the Austrians, solidified the basis for a unified Germany under Prussia's leadership. Subsequently, in both World War I and World War II, none of the combatants, victor or vanquished, gained as a result of the conflict. The United States and the Soviet Union did emerge as the two global super powers after World War II. But, the Soviet Union suffered horribly during the war, and the postwar prosperity enjoyed by the United States was not the consequence of its military victory. Indeed, the defeated Axis powers recovered relatively rapidly from wartime devastation and prospered impressively thereafter. Exploiting its wartime victory for forty-five years, the Soviet Union maintained effective control over most of central and eastern Europe and may



have gained economically as a result. But, under the stress of economic stagnation and political dissatisfaction, this empire collapsed in 1990; and by 1992, the Soviet state itself split apart into politically independent republics. Earlier than this, efforts by each of the super powers to impose their military wills on much smaller countries—the United States in Vietnam and the Soviet Union in Afghanistan—ended in failure.

Before the 20th century, these things often turned out quite differently. For those who were good at it, military aggression and imperialism often paid off economically. The Vikings, for example, pillaged with enthusiasm and success along the coasts and rivers of Europe in the 9th and 10th centuries. Spain grew rich on the new world plunder gathered up by a few hundred conquistadors early in the 16th century. Britain prospered during the 17th, 18th, and 19th centuries from its far flung empire. The other European imperialists who came relatively early to the game—the Portuguese, the Dutch, the French, and (to some extent) the Belgians—also profited, although the late comers—the Germans and the Italians—did not. Austria's central European empire generally prospered and expanded from the 16th through the 19th century. Over six centuries, the czars built the huge Russian Empire. For 1600 years, Constantinople (now Istanbul) retained its importance as an imperial capital under the Romans, Byzantines, and Ottoman Turks. Indeed, by the end of the 19th century, the political map of the world was, to an impressive extent, a patch quilt of different empires. And this political reality clearly influenced patterns of global economic integration, which tended to be stronger within rather than across imperial domains.

By the end of the 20th century, all of this had changed. Except for a few bits and pieces, the empires that had existed a century before (and many for long before that) were gone. Efforts to create new empires during the 20th century—by the Germans, Italians, Japanese, and Soviets—all failed. (The map in Figure 2 indicates those regions of the world that are independent nations today but were political dependencies at the turn of the previous century. This excludes important parts of the British empire that had already

**Figure 2**  
**Newly Independent Countries in the Twentieth Century**



achieved significant political independence by 1900.) As a consequence of this substantial change in the political organization of the world, there were important changes in its economic organization as well.<sup>18</sup> Flows of trade, capital, and people that a century ago were channeled within empires now generally take place on a more diversified basis. This is true, for example, of Great Britain where trade with colonies and commonwealth partners has declined substantially relative to trade with former rival imperial powers in Europe. It is also dramatically true for the transition countries of Central and Eastern Europe and the former Soviet Union where, since 1990 trade among them has declined enormously, while trade with the rest of the world has picked up substantially.

Not that we should regret it, but it is relevant to ask why the 20th century was so unkind to imperialism? Obviously, imperialism is a matter of public policy; so, the short answer is that public policy

changed. But, why this policy change on a global scale? Tastes are probably part of the answer. Just as moral revulsion against slavery was critical to its suppression in the 19th century, revulsion at the great carnage of war and the brutality of oppression have helped turn the tide against imperialism. Mass communications that graphically portray carnage and brutality have contributed to the change in public attitudes. Perhaps more important, however, is the shift in technology that has made imperialism an inefficient, if not counterproductive, means of improving economic welfare.

Although he apparently did not fully appreciate his own wisdom, Napoleon once observed, “A bayonet is good for just about anything, except to sit on.” The 20th century has been a very uncomfortable time for imperialists to seek to impose their will on other peoples, either for economic gain or for other reasons. Unwelcome efforts to exert control over an alien people, especially in the face of armed opposition, tends to be very expensive in blood and treasure. In contrast, devoting resources to domestic economic development through efficient investments in physical and human capital and development and exploitation of new technologies is an attractive and reliable path to improved national economic well-being. This is the experience and the lesson of the past century.

As this lesson becomes broadly understood and appreciated, the prospect is that the process of global economic integration—which is being driven by essentially irresistible forces of technological advance—will take place through voluntary means. People around the world will decide to participate—through trade, through movements of people and capital, and through accessing information and taking advantage of new technologies—because they see the benefit to them of such participation. Unlike too many unfortunate episodes in the past, participation in the global economy will not occur at the point of a sword or facing the muzzle of a gun. This, perhaps more than anything else, provides the reasonable assurance that the fundamental forces that are driving global economic integration are, in fact, driving the world toward a better economic future.

## Endnotes

<sup>1</sup> An excellent survey of the progress of international economic integration and its effects during the past century is provided by Crafts (2000).

<sup>2</sup> In the standard textbook of international trade, other things equal, differences in tastes between countries are seen as a reason for trade. In contrast, in models by Krugman (1980) consumers in different countries have the same tastes but for a wide variety of different products. With products produced under increasing returns of the scale, this taste for diversity creates a reason for international trade. Ohlin (1935) provides an interesting discussion of the interaction between tastes and international trade.

<sup>3</sup> For a lucid description of the events surrounding the creation and development of port wine, see Johnson (1988).

<sup>4</sup> A number of the important human migrations dating back to prehistoric times are described, along with commentary about their causes, in *Times Atlas of World History* (1978).

<sup>5</sup> An excellent description of the standard model of international trade theory and of the more specific Heckscher-Ohlin-Samuelson version of this model is provided in Salvatore (1998). A survey of the empirical literature relating to this model is provided by Leamer (1995).

<sup>6</sup> When there are barriers to trade in goods, the Heckscher-Ohlin-Samuelson theory works in reverse; mobility of factors of production tends to operate as a substitute for trade in outputs. In fact, as shown by Mundell (1957), under the same restrictive conditions for which factor price equalization would hold perfectly, mobility of one (out of two) factors of production is sufficient to achieve full international economic efficiency and to completely eliminate the need for trade in outputs. Even when the strict conditions required for full factor price equalization are not met, factor mobility and trade and outputs may well tend to be substitute forms for achieving more efficient international economic integration. For example, it is virtually impossible for many services, such as housecleaning, or restaurant service, to be traded internationally. But workers in low wage countries who have the skills to perform these services can and do move to high wage countries. If the mountain cannot come to Mohammed, Mohammed can go to the mountain.

<sup>7</sup> Rodrick (1999) emphasizes that the barriers to perfect international economic integration (through both trade and factor movements) remain very substantial. These barriers include a variety of cultural, linguistic, and legal differences between countries (even countries as close in these dimensions as Canada and the United States) that keep cross-country trade volumes well below within country, interregional trade volumes. Mussa and Goldstein (1993), among others, emphasize that such natural barriers also appear to affect the integration of global capital markets.

<sup>8</sup> Fogel (1964), for example, estimates that in 19th century America, shipping of grain by wagon ceased to be economical for journeys of more than about sixty miles. One of the responses to this problem, particularly before the development of canals and railroads, was to convert grain into a product with a higher value to weight ratio—namely whiskey. Efforts to impose an excise tax on whiskey production in President Washington's admin-

istration provoked the whiskey rebellion.

<sup>9</sup> I have not found precise data on shipping costs to support this conclusion. However, balance of payments data indicate that the ratio of shipping costs (exports and imports combined) to the value of merchandise trade (exports and imports combined) were about 30 percent around 1800, had fallen to about 10 percent by around 1850, and declined further to about 3 percent around 1900. As a note of caution, this ratio spikes up after 1915 and runs generally between 5 and 10 percent thereafter.

<sup>10</sup> The most important innovation in transportation during the 19th century was for land, not water, transport—namely, the railroads. Fogel (1964) estimates that the “social savings” from railroads in the United States, relative to the next best alternative, amounted to about 2 percent of US GDP in 1890. These “social savings” represent the estimated excess return from investment in the railroads over the normal rate of return on capital investment. While seemingly small relative to GDP, these savings are quite large relative to land transportation costs. The transportation cost reductions wrought by the railroads facilitated international trade as well as domestic trade by reducing internal distribution costs.

<sup>11</sup> Since 1990, there has been a very large reduction in the effective barriers for trade between the transition countries (in Central and Eastern Europe and the former Soviet Union) and the rest of the world economy. The initial effect of the collapse of the communist bloc was a sharp reduction in trade between these countries, reflecting both the sharp initial output declines in the transition countries and the fact that much previously existing trade among these countries did not reflect comparative advantages in the context of the broader global economy. Subsequently, trade between the transition countries and the rest of the world has expanded considerably, especially trade with the more successful transition countries in Central and Eastern Europe.

<sup>12</sup> As previously noted, the share of (non-factor) services in international trade has recently been rising. However, natural barriers to international trade in most services remain high and, primarily for this reason, relatively little of the output of the service sector of most economies potentially enters into international trade.

<sup>13</sup> The onset of the Asian crisis is often associated with the devaluation of the Thai baht on July 2, 1997. This event was clearly important for Thailand and had spillover effects to a few other countries in the region. However, the financial attack on Hong Kong currency and stock market in mid October was a far more important event as measured by the magnitude and scope of the reaction in global financial markets.

<sup>14</sup> The sudden imposition of capital controls by a country in or on the verge of a financial crisis is very different from the maintenance of controls by a country that already has them. Controls that are maintained in place probably have some effect on discouraging capital inflows. This may be particularly true for inflows of the types of capital that may want to run out suddenly in the face of the crisis because investors with these concerns will naturally tend to avoid putting capital into countries that already have controls. Sudden imposition of controls by a country that does not have them may catch some investors flat footed. But partly for this reason the sudden imposition of controls is likely to be regarded and remembered as an unfair change in the rules of the game. Moreover, if investors suspect that controls may suddenly be imposed, those with an inclination to run will rush to do so.

<sup>15</sup> An excellent analysis of the impact of advancing technology on financial services and a discussion of some of its key public policy implications is provided in Claessens, Glaessner, and Klingebiel (2000).

<sup>16</sup> For a recent survey of the evidence on this subject, see Edwards (1998). Crafts (2000) summarizes evidence that shows that using broader measures of human welfare than real per capita GDP (including life span and education) the improvement in human welfare in poorer countries is significantly larger than that indicated by real per capita income alone. These broader improvements in human welfare undoubtedly owe much to the globalization of advances in medicine, public health, and hygiene.

<sup>17</sup> This important issue is discussed in detail in Eichengreen and Mussa (1998).

<sup>18</sup> Baldwin and Martin (1999) emphasize the change in the political structure of the world as a particularly important change in the qualitative character of international economic integration during the past century.

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