CHAPTER II INTERNATIONAL LINKAGES: THREE PERSPECTIVES

The three essays in this chapter focus on current policy issues involving interactions across national economies. Given that the global economy is in a synchronized slowdown in economic activity, the first two essays are devoted to an examination of the international business cycle linkages among the seven major advanced economies—hereafter called the Group of Seven (G-7) countries—and between the advanced and developing economies. The final essay looks at the issues involved in the proposed launching of a new multilateral trade round under the auspices of the World Trade Organization (WTO).

In examining the international business cycle linkages among the G-7 countries, the first essay notes the paradox that while economic and financial interdependence has increased with rapid globalization in recent years, there has been skepticism as to the importance of these linkages. The skepticism stems from the experience of the early 1990s when, in contrast with the 1970s and 1980s, the downturn in activity in the United States was not synchronized with those in continental Europe or Japan. The essay finds that there has indeed been a rapid increase in cross-border links, especially in the financial domain, over the past decade that is contributing to the broad nature of the current global slowdown, but that their importance was obscured in the early 1990s by two unusually large and idiosyncratic shocks—German reunification in continental Europe and the rise and fall of the asset bubble in Japan.

The second essay looks at the relatively underresearched area of cyclical connections between advanced and developing economies. At an aggregate level there is a clear correlation between the two cycles. By examining the main international transmission channels of shocks—trade and financial markets—the essay concludes that developing regions of the world such as Asia, whose goods often compete with or complement those in the industrial core, are likely to be more dependent on cyclical conditions in the advanced economies than regions such as the Middle East and sub-Saharan Africa, whose cycles are much more dependent on conditions in commodity markets.

The final essay moves from cycles to longer term structural improvements to the global economy, and examines the state of play in launching a new multilateral trade round after the failure to do so in Seattle in 1999. It outlines the significant benefits that trade can provide for the global economy, including enhanced prospects for growth and development. It concludes that, while the situation has improved since the debacle in Seattle, there are still many issues that need to be resolved before a new round can begin.

Business Cycle Linkages Among Major Advanced Economies

Recent developments have refocused attention on the international business cycle linkages among advanced economies. The issue of whether, and how far, the current U.S. slowdown in growth will affect activity elsewhere, in particular in Europe, has been widely debated. The debate takes place against the background of two apparently contradictory features of the recent experience with business cycle linkages in the 1990s. On the one hand, the remarkable asymmetries in economic fluctuations in the major currency areas experienced during this decade have implied weak international business cycle linkages. On the other hand, some feel that increasing international economic interdependence, especially in financial markets, must have enhanced underlying international business cycle linkages. This essay documents the evolution of international business cycle linkages

Table 2.1. Cross-Correlations of Output Gaps in Group of Seven (G-7) Countries, 1974–2000 and 1991–2000[1]

(Shaded entries are correlation coefficients for the period 1991–2000)

	United States	Japan	Germany	France	Italy	United Kingdom	Canada
United States	. . .	0.28	0.47	0.35	0.46	0.66	0.78
Japan	–0.60	. . .	0.65	0.55	0.53	0.27	0.10
Germany	–0.57	0.53	. . .	0.61	0.74	0.23	0.26
France	–0.10	0.05	0.72	. . .	0.70	0.50	0.32
Italy	–0.28	0.38	0.75	0.74	. . .	0.45	0.50
United Kingdom	0.68	–0.36	–0.38	–0.14	0.15	. . .	0.60
Canada	0.79	–0.66	–0.38	0.15	0.08	0.82	. . .

Source: IMF staff calculations.

[1]Output gaps at business cycle frequencies (6–32 quarters) were computed with the approximate bandpass filter proposed by Baxter and King (1999). Correlation coefficients were calculated on the basis of an autocorrelation-heteroscedasticity consistent estimate of the variance-covariance matrix of the output gaps.

among the G-7 countries since 1974, when the generalized floating of the major currencies was introduced. It examines how international economic interdependence in goods and assets markets has changed, reflects on how it may have affected the international transmission of disturbances, and discusses the implications for the current cycle.

Recent Developments in Perspective

Common elements in business cycle fluctuations across countries have long been noted in the literature on business cycles (see, for example, Haberler, 1958). The timing of recessions or contractions in economic activity is often conspicuously similar, as the almost synchronous downturns in all G-7 countries during the 1974–75 and 1980 recessions illustrate. Recoveries and expansions in economic activity also frequently coincide, although the average duration of expansions varies widely among G-7 countries (McDermott and Scott, 2000). Moreover, and most relevant for this essay, the direction and magnitude of output fluctuations around potential output tend to be similar, as evinced by the generally large positive bilateral correlations among output gaps in all G-7 countries at business cycle frequencies between 1974 and 2000 (Table 2.1).[1] From the 1980s, the mounting evidence on strong and systematic positive comovements led to the notion of a world business cycle or an international business cycle.[2]

Developments during the early 1990s, however, did not fit the notion of an international business cycle. Recessions occurred with noticeable differences in timing—in 1990–91 in the United States, the United Kingdom, and Canada, and in 1992–93 in Japan, Germany, France, and Italy. As a result, almost half of the correlation coefficients for the 1990s period became negative and the average correlation coefficient among output gaps in G-7 countries dropped from 0.60 during 1974–90 to 0.12 during the last decade (see shaded entries in Table 2.1).

Should the notion of the international business cycle be reconsidered in light of these developments? To put the experience of the 1990s in perspective, it is useful to compare the actual output gap in each G-7 country to a common

[1]To ensure consistency across countries, output gaps (actual output minus potential output as a fraction of potential output) for all G-7 countries were calculated by using potential output measures derived with the approximate bandpass filter proposed by Baxter and King (1999) rather than potential output estimates typically used in the *World Economic Outlook*. The business cycle component of a variable is defined as the sum of all components fluctuating at frequencies between 1½ and 8 years (6–32 quarters).

[2]See, among others, Swoboda (1983), Camen (1987), Gerlach (1988), Canova and Dellas (1993), Gregory, Head, and Raynauld (1997), and Gregory and Head (1999).

component (Figure 2.1). The latter quantifies the international business cycle element in that country's output gap and was extracted with a so-called generalized dynamic factor model, which is a technique used to identify and estimate a small number of factors that explain a substantial fraction of output fluctuations across countries.[3] These estimated factors reflect global shocks affecting all countries and country-specific shocks with significant spillovers on all other G-7 countries. Although the set of underlying factors is the same for all seven countries and was estimated simultaneously, the common component for each country is different because the model allows for country-specific dynamic responses to the shocks captured by the factors. The difference between the output gap and the common component shows the idiosyncratic part in a country's output fluctuation—that is, the country-specific disturbances net of significant spillover effects on other countries.

Asymmetric shocks explain why the contribution of the international business cycle to output fluctuations in each country varies widely over time. Noticeable differences between output gaps and the common component emerged in Germany from the late 1980s through the early 1990s, reflecting the impulse from German reunification, which was transmitted to other European countries but not to the United States or Japan. There have also been significant differences in Japan since 1993, related to the bursting of the bubble in Japanese asset prices in the early 1990s and the subsequent protracted economic difficulties.[4] The disturbances were large enough to alter radically the correlation patterns among output gaps in G-7 countries during the 1990s, as shown by the rolling eight-year correlation windows in Figure 2.2. Most notably, the

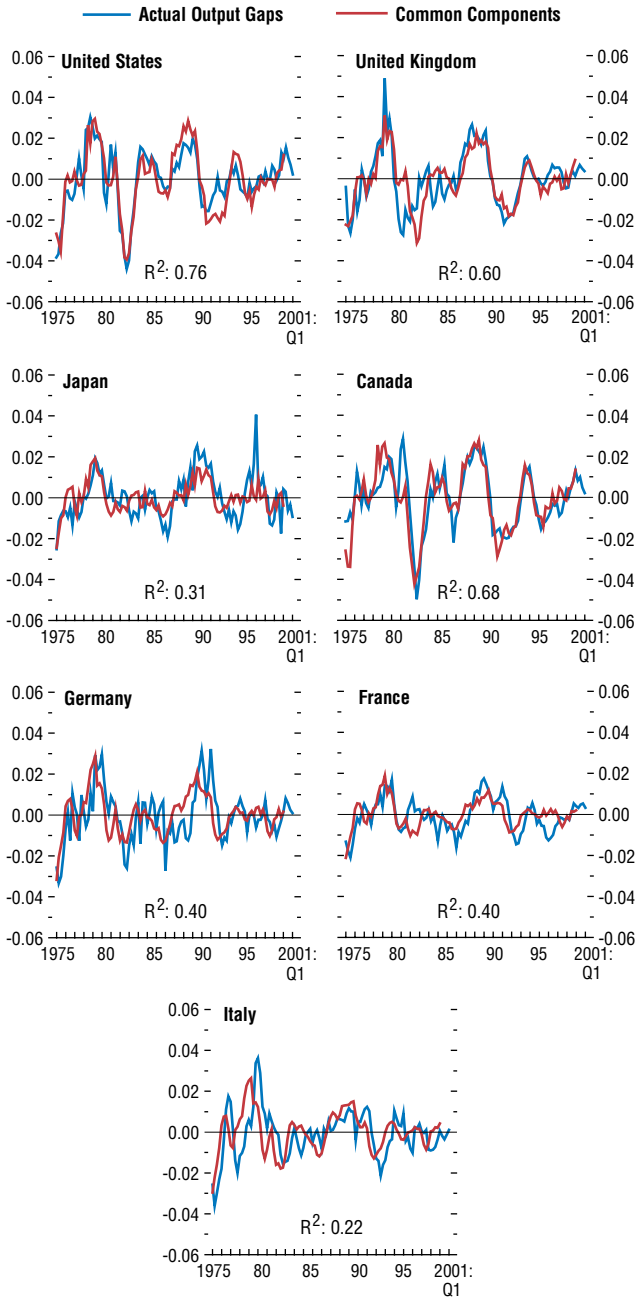
[3]See Forni and others (2000) for details on the generalized dynamic factor model and Lumsdaine and Prasad (1999) and Clark and Shin (1998) on other approaches to identify and estimate common components.

[4]See Chapter IV of the October 1998 *World Economic Outlook* on Japan's financial problems since the early 1990s and their impact on the real economy.

Figure 2.1. Common Components in Group of Seven (G-7) Output Gaps[1]

(Actual output gaps and common components as fraction of potential GDP)

The international business cycle as captured by the common component is an important driving force behind business cycle fluctuations in G-7 countries.

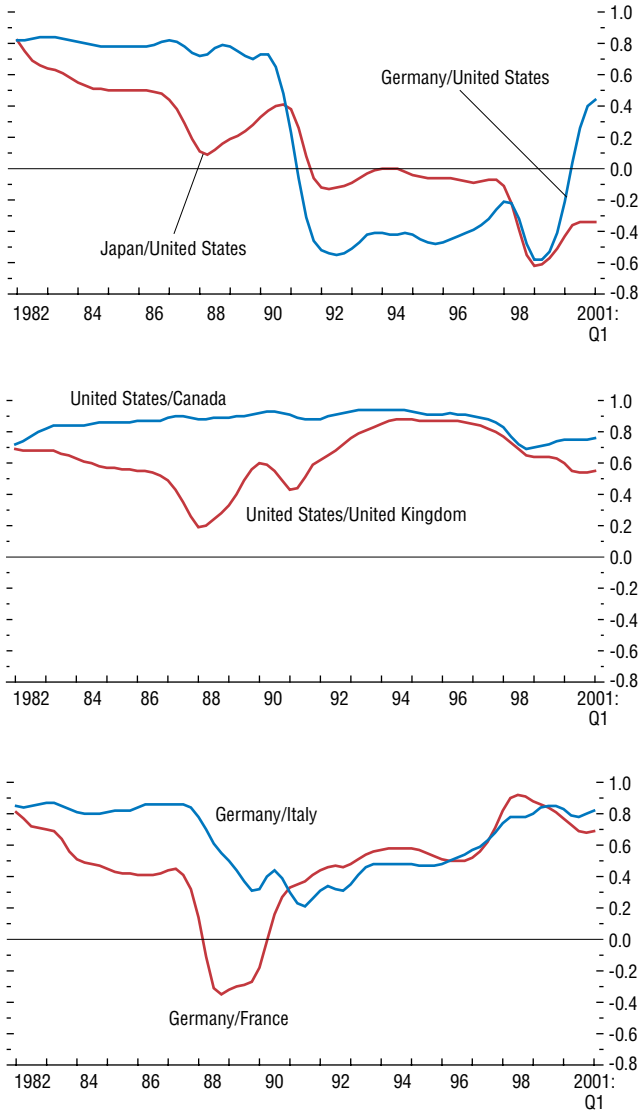


Source: IMF staff calculations.

[1]Common components are based on two factors, as estimated with the generalized dynamic factor model approach of Forni and others (2000). R^2 is the coefficient of determination for each country in the common components model and is a measure for the degree of variation in the output gap that is explained by the common component.

Figure 2.2. Group of Seven (G-7) Countries: Selected Bilateral Output Gap Correlations[1]
(Rolling eight-year correlation windows)

Asymmetric disturbances in the early 1990s led to radical changes in the correlation patterns among output gaps in the United States, Japan, and Germany, while other correlations remained much more stable.



Source: IMF staff calculations.
[1]Labels indicate the correlation pair.

correlation between output gaps in the United States and Japan and the United States and the euro area countries turned negative.[5] This emphasizes the importance of the magnitudes, origin, and kind of disturbances for international business cycle linkages. It also highlights how sensitive the average correlations of output gaps are to the particular time period chosen for the analysis.

Global shocks and shocks with significant spillovers must have also been important, however, as the common components contributed prominently to changes in output gaps in all G-7 countries during 1974–2000, even though cross-country variations were significant. The common components seem dominant in the United States, Canada, and the United Kingdom. In the euro area countries (Germany, France, and Italy), they seem less important, as shown by the more frequent and sometimes sizable difference between output gaps and common components. In Japan, the common component is also less important than the idiosyncratic component in explaining output gap movements. These cross-country differences and the noticeable timing differences in peaks and troughs of output gaps and common components (especially in Japan and the euro area countries) make it difficult to say that there is a single world cycle across the major advanced economies.

Several observations hint at the role that structural factors and policy regimes play in determining the strength of international business cycle linkages. First, some linkages have been less affected by asymmetric shocks than others. Comovements among output gaps in the United States, Canada, and the United Kingdom remained positive during the entire 1990s. Similarly, business cycle linkages in the euro area countries remained strong or, perhaps not unexpectedly in view of the integration occurring in

[5]Eight-year correlation windows were chosen because this length approximates the duration of an average business cycle (see also Baxter and King, 1999). The finding of negative correlations is robust with regard to the window length.

the European Monetary System, grew stronger during the 1990s. The close affiliation of the business cycle in the United Kingdom with that in the United States, despite much more important trade links with the euro area countries, may have been the result of strong financial market linkages, as discussed below.[6] Second, the United States appears prominent in the international transmission of disturbances. The strong correlation between the common component and output gaps in the United States compared to Japan or Germany suggests that U.S. disturbances, such as the monetary policy shocks leading to the 1990–91 recession, generally affected all G-7 countries while the international transmission of disturbances originating in other major currency areas may have been weaker. This asymmetry is likely to reflect differences in country size and the depth of financial markets. Finally, the wide variations in common components in the G-7 countries at any point in time suggest that economies reacted differently to disturbances as a result of differences in economic structure and, sometimes, the conduct of stabilization policies.

At the current conjuncture, the strong common components in national business cycle fluctuations observed during the 1970s and 1980s appear to have resurfaced. The asymmetries in business cycle fluctuations in the Anglo-Saxon countries (the United States, Canada, and the United Kingdom) and the euro area countries disappeared in 1999 and 2000, as output gaps moved in the same direction. However, the asymmetries have persisted in the case of Japan.

Increased Economic Interdependence and the International Business Cycle

The strength of international business cycle linkages among the seven major advanced economies depends not only on the magnitude and origin of disturbances but also on the structure of international trade in goods, services, and financial assets. This structure of economic interdependence is a dynamic process, driven mostly by secular trends related to technological progress and regulatory changes. For example, as noted by Mussa (2000), the increasing merchandise trade interdependence since the 1950s has been the result of declining transaction costs following the substantial, progressive reduction in artificial barriers to international commerce in the context of multilateral and regional trade liberalization (see the third essay on global trade issues) and advances in transportation and communication technology. However, despite remarkable declines in cross-border transaction costs and corresponding increases in interdependence, national borders remain important barriers to trade in goods, services, and financial assets. Trade within countries continues to exceed cross-country trade by a surprisingly large margin, even when taking into account impediments, such as distance or different languages, that make cross-border transactions different from within-country transactions (see Obstfeld and Rogoff, 2000).

Trade Linkages

The strength of trade-related spillovers ensuing from disturbances in one or more countries depends on the depth of trade interdependence. Export and import shares in major advanced countries indicate that overall trade interdependence generally increased during 1974–2000 (Table 2.2). For merchandise trade, the level and direction of direct trade interdependence among G-7 countries during the 1990s remained very similar to the 1970s. Except for Canada, where trade was boosted following the introduction of the Canada-U.S. Free Trade Agreement (effective 1989) and the North American Free Trade Agreement (effective 1994), the average export and import shares to

[6]Artis and Zhang (1999) or Kontolemis and Samiei (2000) provide recent discussions of the business cycle in the United Kingdom.

Table 2.2. Trade Interdependence in Group of Seven (G-7) Countries, 1974–2000
(Period averages in percent of GDP)

	United States	Japan	Germany	France	Italy	United Kingdom	Canada
Merchandise imports from other G-7 Countries							
1974–1980	3.6	3.2	7.2	7.6	9.0	9.2	18.2
1991–2000	4.9	2.4	8.0	9.1	8.1	10.4	24.2
Merchandise exports to other G-7 Countries							
1974–1980	2.9	3.9	7.8	6.5	8.3	6.5	17.3
1991–2000	3.4	3.8	8.9	8.8	9.2	8.4	27.8
Merchandise imports							
1974–1980	7.8	11.3	19.9	17.7	20.3	24.4	23.2
1991–2000	10.2	6.8	20.4	19.3	17.4	22.4	30.7
Merchandise exports							
1974–1980	6.7	11.3	22.8	16.2	17.7	20.6	22.1
1991–2000	7.5	9.1	22.9	19.7	18.8	19.5	30.8
Imports of goods and services[1]							
1974–1980	9.0	12.5	24.2	20.4	22.5	28.1	24.5
1991–2000	12.1	8.5	26.0	22.1	21.7	27.3	34.5
Exports of goods and services[1]							
1974–1980	8.5	12.8	26.3	19.5	22.1	27.6	24.6
1991–2000	10.7	10.2	26.6	23.7	24.4	26.3	36.3

Sources: IMF, *Direction of Trade Statistics*; and OECD.
[1]Based on national accounts data.

and from other G-7 countries, measured in percent of GDP, rose by 2 percentage points or less.[7] National accounts data, which include exports and imports of services, also show small increases in trade interdependence.[8] Unfortunately, consistent direction of trade statistics are generally unavailable for services, but it seems plausible that interdependence in services trade among the G-7 countries has contributed at least proportionally to the overall increase, given that the services share in consumption tends to increase with per capita income.

The small increase in trade interdependence among G-7 countries between 1974 and 2000 suggests that, except for Canada, the nature and strength of dynamic trade-related output and terms of trade effects of a disturbance in any of the G-7 countries on output in the other G-7 countries are unlikely to have changed significantly during this period. This is not to say that the trade channel is unimportant; on the contrary, there is some evidence that bilateral output comovements tend to be stronger with closer merchandise trade links.[9] However, using standard income and price elasticities from estimated export and import equations for G-7 countries, small increases in trade shares do not generate substantial changes in output comove-

[7]The overall trade interdependence between G-7 countries could also have risen because of trade with third countries. However, magnitudes of the variation in overall merchandise trade shares of G-7 countries do not suggest significant changes in indirect trade interdependence.

[8]National accounts data suggest that, consistent with traded good prices rising less than nontraded good prices, trade volume growth was generally somewhat higher than growth in trade values. For the impact on business cycle linkages that changes in trade interdependence may have, however, trade values seem more relevant.

[9]See, among others, Canova and Dellas (1993) and Frankel and Rose (1998). The correlation between the bilateral output gap correlation coefficients during 1974–2000 reported in Table 2.1 and average bilateral import shares during this period is 0.45. However, the strong output comovements are not likely to reflect trade effects alone, since closer trade links are partly related to factors such as proximity and similar conduct of policies, which affect the strength of business cycle linkages themselves as well.

ments.[10] It also seems very unlikely that the actual change in trade interdependence among G-7 countries would have led to significantly higher correlations among country-specific disturbances that could have strengthened cross-country output correlations.[11] More generally, simulations of large multicountry models, such as the IMF's MULTIMOD, also suggest that trade linkages alone are unlikely to generate the output correlations found in actual data.

Financial Market Linkages

Financial markets are another important channel for transmitting disturbances internationally, with the mechanisms of transmission based on cross-border diversification of assets and liabilities on the one hand and cross-border asset price arbitrage on the other. Innovations related to advances in information technology and financial liberalization are rapidly integrating financial markets.

Cross-border diversification of assets and liabilities in the G-7 countries has greatly increased over the last two decades. Foreign assets and liabilities of residents in all major advanced economies more than doubled as a percentage of GDP between 1980 and 2000, with a remarkable acceleration in the 1990s (except in Japan), often reaching levels close to 100 percent of GDP by the end of the millennium (Figure 2.3). While some asymmetries between assets and liabilities are noticeable depending on whether the

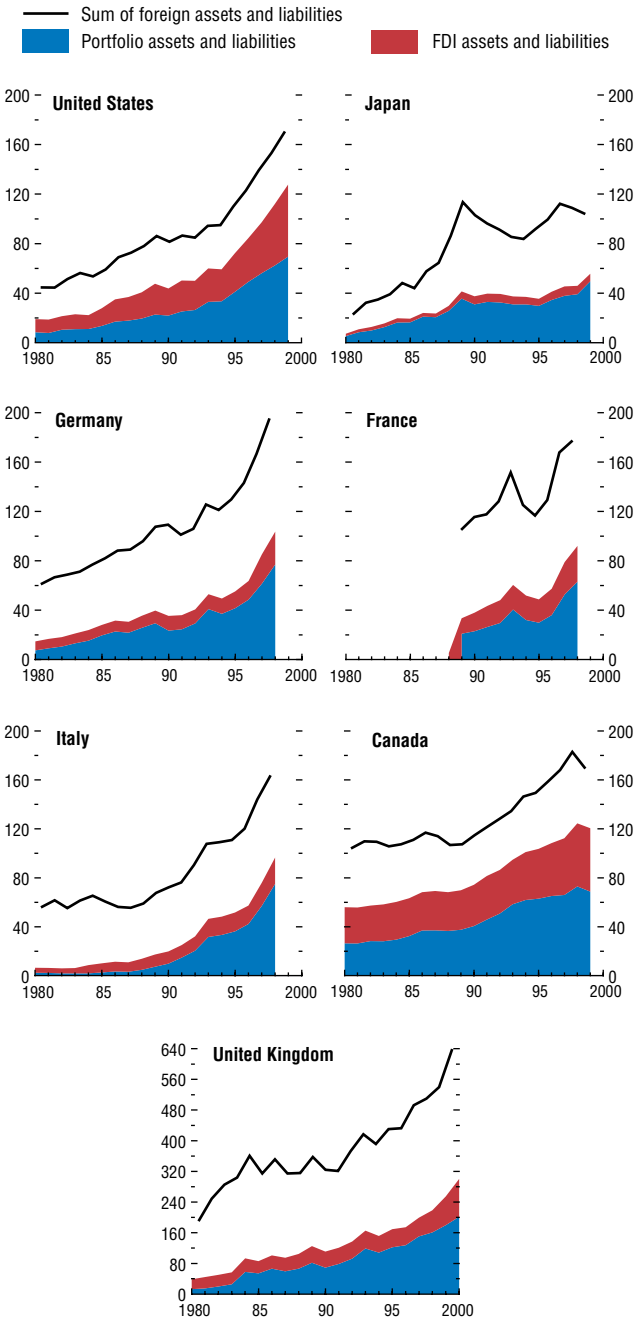
[10]Using standard income elasticities for total exports and imports may lead to an underestimation of the impact that the recent changes in trade shares may have had on output comovements. As noted by Kose and Yi (2001), trade is increasingly characterized by vertical specialization, that is, by countries specializing in particular stages of the value-added chain of goods production rather than in producing entire goods. This process should in principle lead to time-varying income elasticities for total exports and imports, so that output correlations could increase even with unchanged shares of overall trade in GDP.

[11]As noted by Canova and Dellas (1993), among others, output comovements also depend on the correlation of disturbances. Frankel and Rose (1998) conjectured that increased trade integration could raise the covariance of productivity shocks because of the technology transfer involved in the international trade in capital goods and some inputs.

Figure 2.3. Group of Seven (G-7) Countries: Asset Market Interdependence

(Percent of GDP)

Cross-border diversification of assets and liabilities in the G-7 countries greatly increased during the last two decades.



Sources: IMF, *Balance of Payments Statistics* and *International Financial Statistics*.

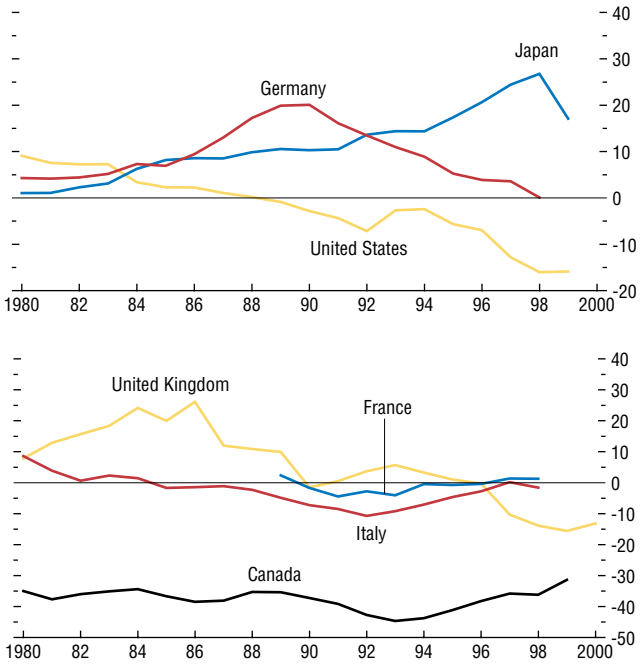
country is a net debtor or creditor, the broad trend toward two-way diversification—buying foreign assets while at the same time issuing liabilities to nonresidents—clearly accounts for the main part of the increases (Figure 2.4). Hence, the increase in cross-border diversification is only partly related to savings-investment imbalances, the persistence of which is in itself a reflection of more asset market integration.

Most of the increase in foreign assets and liabilities reflected rises in portfolio and foreign direct investment holdings, both of which involve a substantial equity element, except in the case of Japan, where banks led the increase in foreign exposure in the latter part of the 1980s. Again with the exception of Japan, foreign direct investment (FDI) and portfolio flows accelerated (Figure 2.5), especially during the last few years, although the sharply rising equity prices in all major advanced countries but Japan during the 1990s also played an important part in the increased stocks of foreign assets and liabilities.

Assessing the extent of cross-border diversification among G-7 countries would require data on bilateral asset holdings and capital flows. As in the case of trade in services, such data are generally not available.[12] Partial evidence based on data on bilateral cross-border asset holdings for the case of the United States shows that the general trend toward increased financial market interdependence noted above also holds for the G-7 countries (Figure 2.6). U.S. residents' holdings of foreign assets in G-7 countries and holdings of U.S. assets by residents of other G-7 countries as a percentage of GDP increased substantially between 1994 and 2000.[13] Distinguished by type of investment, FDI is the most important vehicle for investment, both for U.S. residents and nonresidents. Distinguished by destination or origin of investment, the relative importance of G-7 countries during 1994–2000 remained broadly unchanged for equity. For FDI, the share of G-7 countries de-

Figure 2.4. Group of Seven (G-7) Countries: Net Foreign Assets
(Percent of GDP)

Changes in net foreign assets were only one factor behind the broad trend toward asset and liability diversification.



Sources: IMF, *Balance of Payments Statistics* and *International Financial Statistics*.

[12]See, however, IMF (2000) for a survey on the distribution of portfolio assets and liabilities at the end of 1997 by destination and instruments for 29 countries.

[13]The data exclude official holdings of foreign assets.

clined somewhat, suggesting that with globalization, U.S. firms were looking to establish themselves in new markets while firms from other countries sought to deepen their engagement in the United States. With regard to bonds, the share of U.S. residents' holdings in G-7 countries increased sharply, largely on account of holdings in the United Kingdom. However, this is likely to reflect that country's position as a financial center, so that the increase probably reflects holdings of bonds issued by residents in countries other than the United Kingdom as well.[14]

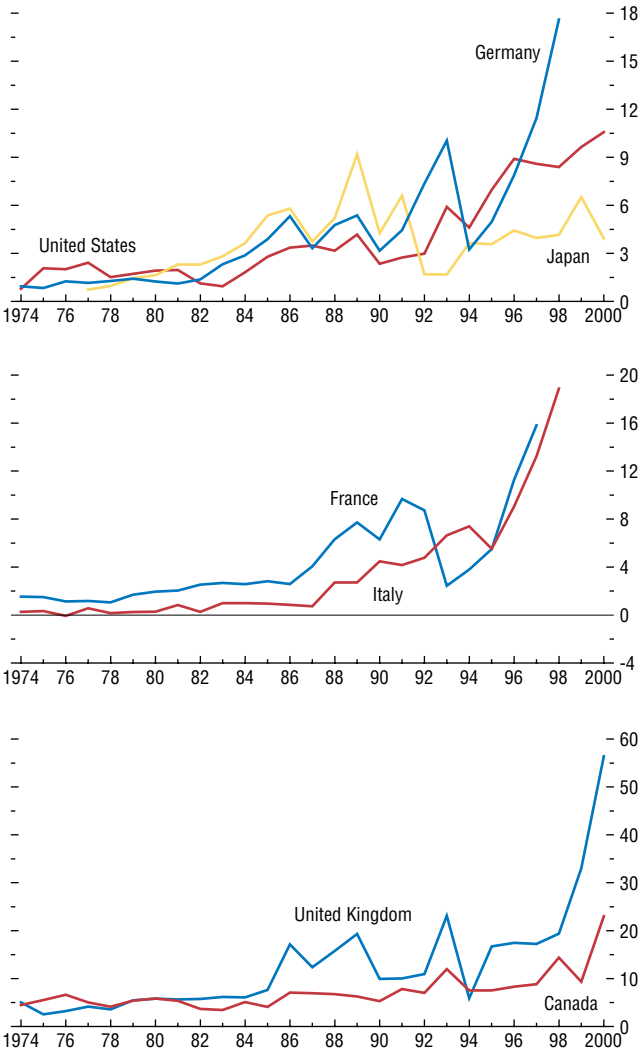
As a result of increased cross-border diversification, portfolio assets as a share of household financial wealth more than doubled between 1981–85 and 1996–99 in most G-7 countries (Table 2.3).[15] The international diversification of wealth is most prominent in the United Kingdom, where the share of foreign assets in total household financial assets was about 25 percent on average during 1996–99. However, this large share partly reflected that country's role as an international financial center and is correspondingly mirrored in foreign portfolio liabilities that are also large. Germany and France follow next in the ranking of cross-border wealth diversification, with shares in excess of 10 percent during 1996–99. In Japan, Canada, and the United States, the share of foreign assets in total household financial assets remained below 10 percent on average during 1996–99. Nevertheless, despite the remarkable increases in holdings of foreign assets in terms of GDP, cross-border diversification in terms of household wealth—the relevant denominations

[14]The data are based on the location of the financial intermediary conducting the transaction.

[15]Official household wealth data are not available for Italy. Also, unfortunately, portfolio assets and liabilities data classified by ownership are not readily available. The comparison does not imply that households account for all or even most of the increase in cross-border asset and liability diversification. On the contrary, there is evidence (e.g., flow of funds data for the United Kingdom) suggesting that financial intermediaries account for most of the rising cross-border diversification. However, as households own directly or indirectly a substantial share of liabilities of financial intermediaries (e.g., mutual fund shares), it is plausible that their financial decisions may have been at least partly affected by cross-border diversification.

Figure 2.5. Group of Seven (G-7) Countries: Gross Foreign Direct Investment and Portfolio Flows[1]
(Percent of GDP)

FDI and portfolio flows accelerated during the 1990s.

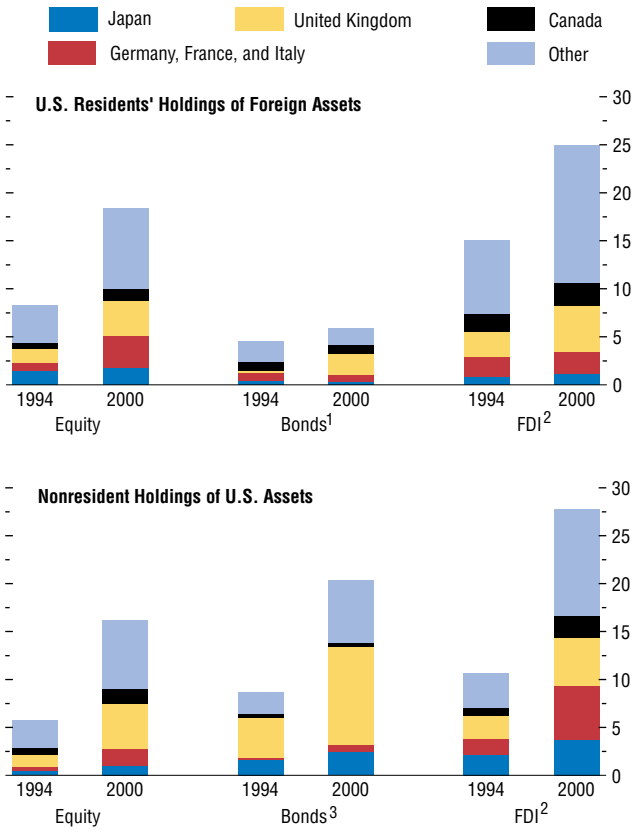


Sources: IMF, *Balance of Payments Statistics and International Financial Statistics.*
[1]Sum of credit and debit items.

Figure 2.6. U.S. Asset Markets and Group of Seven (G-7) Countries

(Percent of U.S. GDP)

Group of Seven countries account for a significant and rather stable share in both U.S. residents' holdings of foreign assets and nonresidents' holdings of U.S. assets.



Source: U.S. Department of Commerce, *Survey of Current Business.*

[1]Excluding official holdings of foreign bonds.

[2]At market value. Bilateral holdings estimated using shares based on data on a historical cost basis.

[3]Excluding official holdings of U.S. bonds. Private holdings of U.S. treasury bonds estimated using shares based on private holdings of U.S. corporate and agency bonds.

for consumption and savings decisions—remained limited even at the end of 1999.[16]

Besides sources of financing, firms also diversified their operations internationally through the expansion of existing affiliates as well as through a wave of mergers and acquisitions, as reflected in the increased stocks and flows of foreign direct investment. Firm-level financial data indicate that for listed companies, sales revenue from operations of foreign affiliates generally account for an increasing share in total sales revenue in the major advanced countries (Table 2.4). Sales revenue from foreign affiliates are much more important for European and Canadian firms than for U.S. or Japanese companies, reflecting in part the much higher degree of openness of these economies and in part the high degree of interdependence within the European Union or NAFTA for Canada. The rapid increase in FDI flows compared to exports or imports may be an indication that, for multinational companies, mergers and acquisition and capital accumulation abroad have been a substitute for trade, so that trade data alone do not adequately reflect international economic interdependence at the firm level. Disturbances abroad that have little effect on trade flows may still affect the local economy through their impact on revenue and profits of foreign affiliates.

Financial innovations have also increased the scope for cross-border asset price arbitrage, implying that comparable risks should be priced similarly in all countries. As illustrated in Figure 2.7, equity market linkages as measured by the correlation between equity returns are generally strong and positive, as expected with significant asset market interdependence.[17] Although eq-

[16]Despite noticeable increases during the 1990s, the actual extent of cross-border portfolio diversification remains below the optimum implied by most models of optimal portfolio allocation, and the so-called home bias in portfolio allocation remains a puzzle in a world with seemingly highly integrated capital markets (see, for example, Tesar and Werner, 1995, or Lewis, 1999).

[17]De Santis and Gerard (1997) and Dumas, Harvey, and Ruiz (2000), among others, found evidence that is broadly consistent with identical pricing of equity market risk in advanced economies.

Table 2.3. Foreign Portfolio Assets and Household Wealth in Selected Group of Seven (G-7) Countries
(Period averages of end-year data)

	United States	Japan	Germany	France	United Kingdom	Canada
Foreign portfolio assets as percent of household financial assets						
1981–85	1.0	3.3	. . .	. . .	12.6	2.1
1986–90	1.8	7.2	. . .	. . .	17.3	2.9
1991–95	4.1	7.7	9.6	5.6	23.2	4.4
1996–99	6.6	8.9	15.0	10.9	25.6	6.6
Foreign portfolio equity assets as percent of household financial assets						
1981–85	0.3	0.0	. . .	. . .	7.5	1.7
1986–90	1.0	0.0	. . .	. . .	9.8	2.1
1991–95	2.7	1.2	3.8	2.0	10.5	3.4
1996–99	4.8	1.7	7.3	3.2	11.8	5.1
Memorandums items:						
Household financial assets as percent of household net worth						
1981–85	69.7	42.5	. . .	37.8	51.9	58.6
1986–90	71.7	41.5	. . .	49.6	52.7	63.9
1991–95	76.9	50.1	. . .	55.2	64.1	67.3
1996–99	82.2	58.2	. . .	58.8	68.8	70.2

Sources: IMF, Balance of Payments Statistics; and national household balance sheet data.

Table 2.4. International Revenue Diversification of Listed Joint Stock Companies in the Group of Seven (G-7) Countries[1]
(Revenue from sales of foreign affiliates as percent of domestic sales; period averages)

	United States	Japan	Germany	France	Italy	United Kingdom	Canada
1990–94	42.6	30.5	74.8	129.6	80.2	99.4	49.2
1995–2000	46.3	33.6	96.9	222.9	90.5	99.9	74.6

Source: Thompson Financial; Worldscope Database.
[1]The data are sales-weighted firm averages based on a balanced panel of firms. The number of firms and their share in total output vary across countries. Only firms that report international sales are included in the panel.

uity returns were already closely connected in the mid-1970s, the links have intensified, as shown by the rise in correlations between equity returns in each country and aggregate equity returns in G-7 countries between 1974 and 2000 in all countries but Japan and the United States.[18] Only Japan registered a significant fall in the correlation of local equity returns with the G-7 market portfolio, presumably reflecting protracted corporate balance sheet problems and the resulting decline in correlations with output gaps in other G-7 countries. Interest rate linkages are, of course, well known and tend to be even stronger than equity market linkages. Evidence based on similar calculations shows that total returns in U.S. dollars on large bond portfolios in each G-7 country are highly correlated with the G-7 bond market portfolio and that the correlation coefficients often exceed those for excess equity returns.[19]

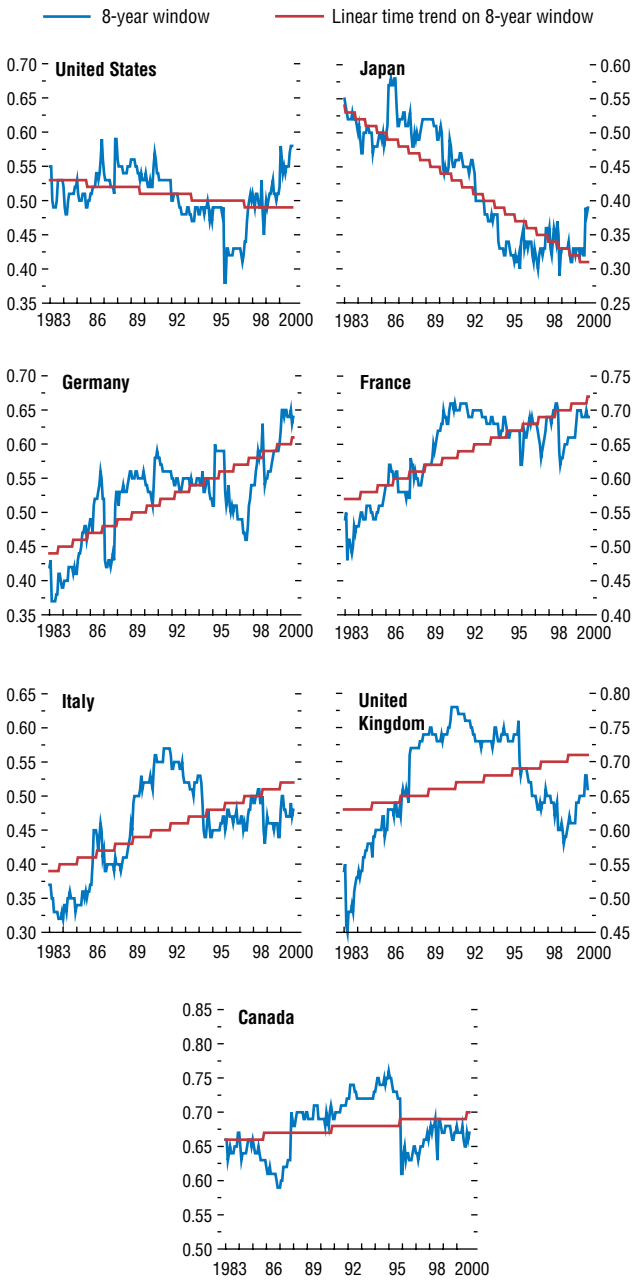
Since asset market interdependence, especially the cross-border diversification of wealth,

[18]This is consistent with Longin and Solnik (1995), who found an increase in the correlation of returns across seven major equity markets during 1959–1991, and Stulz (1999), who noted a small increase in the correlation between local equity returns and the return on the MSCI world market portfolio between October 1979 and March 1995.
[19]Based on Salomon Brothers total return indices on bond portfolios for the period 1985–2000.

Figure 2.7. G-7 Equity Return Linkages[1]

(Rolling correlation windows; returns are excess returns in U.S. dollars)

Correlation between equity returns in G-7 countries generally increased during the last two decades.



Sources: Primark Datastream; and IMF staff calculations.

[1]The correlation is between local excess equity returns and the return on a PPP-weighted equity portfolio for the other G-7 countries. Excess returns are calculated as the nominal monthly returns on the Morgan Stanley Capital International total return indices (in U.S. dollars) minus the one-month U.S. dollar interest rate in the Eurodollar market.

which only began to accelerate from the early to mid-1990s, broad-based empirical evidence on changes in the transmission of shocks through financial market linkages has yet to emerge. Nevertheless, the increased international interdependence in financial markets over the last two decades is likely to have raised the potential for stronger output comovements. As changes in the structure of financial market linkages occurred gradually, their rising impact on the magnitude of output comovements during the last two decades may have been overshadowed by the impact of disturbances.

The international transmission of disturbances will probably be amplified by the increased financial market interdependence, since many disturbances influence not only demand but also financial market prices. For example, the close affiliation of the business cycle in the United Kingdom with that of the United States rather than the euro area—its major trading partner—may reflect the dominance of financial factors over traditional trade linkages, although the United Kingdom's alignment with the euro area cycle has increased since 1999. The structure of the country's financial system, characterized by direct finance through securities and adjustable rate credit, resembles that of the United States, and has allowed asset prices to play an important and direct role in the transmission of business cycles, unlike the more bank-based financial systems in the euro area.

The speed with which disturbances are transmitted abroad is also likely to increase somewhat, as financial market prices and trading activities are more reactive to news and events than goods market prices or trade flows. Consequently, sentiments about the current state of the economy and prospects for the future as measured by confidence indices can be expected to affect sentiment elsewhere. This is consistent with the recently observed strong comovements in confidence indices across major advanced economies, and evidence of confidence spillovers (see Box 2.1). Moreover, there is evidence that asset price spillovers are especially high in times of heightened volatility in international financial markets

Box 2.1. Confidence Spillovers

In view of the spillover effects of the recent U.S. slowdown on global activity, an intriguing question is the extent to which measures of business confidence are becoming more synchronized across countries. Such cross-border confidence effects would, of course, partly reflect underlying business cycle linkages. But, in addition, there may be information "cascades," as firms quite rationally pay attention to cross-border measures of confidence.[1] There is also the possibility of "fads" or irrational "imitation" of business sentiment.[2] These factors raise the prospect that confidence linkages could, themselves, be becoming a potential channel through which economic shocks can be transmitted across countries.

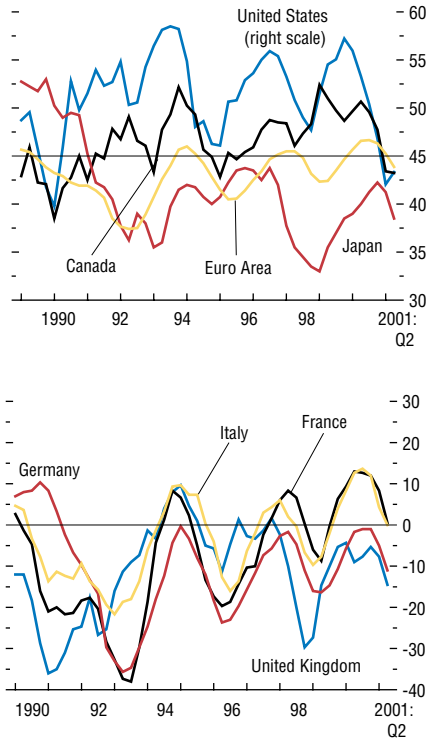
To assess confidence linkages and the extent of spillover or contagion effects, a comparable set of measures for business confidence was obtained for the major industrial economies. The evidence suggests that business confidence measures do tend to move together, but that the degree and strength of synchronization differs significantly among countries and over time (see the Figure). Given the weight of the United States economy and its financial markets, consider first the linkages between the United States and other major countries. Not surprisingly, the strongest link is between the United States and Canadian business confidence (see the Table). Analyses based on vector autoregressions (VAR) suggest that the United States business confidence leads Canadian business confidence by a quarter or so (for detailed results, see Kumar and Kashiwase, forthcoming).

The confidence correlations change significantly in the case of Europe. In the United Kingdom, changes in the United States business confidence appear to have the largest impact relatively quickly, but in the most recent period, the linkage appears to be moderating somewhat.

[1]See, for instance, Avery and Zemsky (1998) and Bikhchandani, Hirshleifer, and Welch (1998).

[2]See Shiller (1998) on fads and other irrationalities in financial markets, and Kumar and Persaud (forthcoming) on spillover effects.

Business Confidence in G-7 Countries



Sources: National Association of Purchasing Managers; Bank of Japan; Eurostat; and Statistics Canada.

For the euro area as a whole, spillover effects from the United States appear to occur mainly after a period of two quarters or so. The size of the correlations has been historically rather limited but there has been a substantial increase during the most recent period. There is also some evidence of a feedback effect, with changes in confidence overseas reverberating back on to confidence measure in the United States. In contrast, the correlation in business confidence between the United States and Japan is consistently negative for the past decade as a whole. The negative long-run correlation in the two measures likely reflects the idiosyncratic shock in Japan with the bursting of the asset

Box 2.1 *(concluded)*

Confidence Linkages Across G-7 Countries
(Correlation with contemporaneous and lagged U.S. business confidence)

	Contemporaneous	1 quarter lag	2 quarter lag	3 quarter lag
Canada				
1990–2001	0.57	0.60	0.44	0.29
1999–2001	0.77	0.85	0.80	0.31
United Kingdom				
1990–2001	0.45	0.58	0.51	0.55
1999–2001	. . .	0.31	0.47	0.28
Euro area				
1990–2001	. . .	0.11	0.31	0.39
1999–2001	. . .	0.11	0.56	0.80
Japan				
1990–2001	–0.38	–0.32	–0.38	–0.43
1999–2001	0.41	–0.25	0.06	0.53

Source: IMF staff calculations.

price bubble and the subsequent protracted economic difficulties.

Consider next confidence linkages *within* Europe, which may be expected to be increasing given the increasing integration among the European economies. The contemporaneous correlation among the three largest euro area economies, especially since the inception of the euro, is high. But, in addition, business confidence in Germany leads confidence in other countries. France and the United Kingdom also appear to have an appreciable influence on Italian business confidence. In the case of the United Kingdom, although there has been an increase in the contemporaneous correlation with France and Germany, the interlinkages are less pronounced.

The variation in the strength and dynamics of confidence linkages among G-7 countries appears consistent with the findings on business cycle linkages reported in the essay. However, two additional exercises examined the extent to which confidence linkages may reflect extraneous factors including information cascades. The first analyzed changes in business confidence *relative to* changes in economic activity and found that the recent increase in synchronization of business confidence between the United States and the euro area, and within the euro area, was substantially greater than could be expected on the basis of comovement in economic activity alone. A second examined the cross-country correlation in residuals obtained from regressing business confidence on measures of activity or leading indicators and found that, except for Japan, the residuals were significantly correlated, with a marked increase in the correlation between the United States and the euro area, and within the euro area. These findings suggest that while a large part of the confidence linkages are due to business cycle linkages, an increasing part may be due to factors not immediately related to economic activity, thereby constituting an additional mechanism for the transmission of economic and financial disturbances.

or bear markets (see, for example, Stulz, 1999, or Dahlquist, Hördah, and Sellin, 2000).

Conclusions and Policy Implications

Over the last four quarters, the seven major advanced economies have for the first time since the early 1980s experienced a broadly synchronized growth slowdown. The breadth of synchronization was surprising in light of the experience with international business cycle linkages during the 1990s, when recessions occurred with noticeable differences in timing. However, from a historical perspective, the synchronous slowdown is

less surprising in view of the nature of recent shocks, all of which were either global (the repricing of information technology stocks and the increase in real crude oil prices) or positively correlated country-specific shocks (monetary tightening in the United States, the euro area, and, to a much lesser extent, in Japan). As shown in this essay, such combinations of shocks were generally associated with strong linkages in the past. More generally, a review of international business cycle linkages during 1974–2000 suggests that their strength varied over time, depending on the nature, magnitude, and origin of disturbances that affect each economy.

The analysis also suggests that the business cycle linkages during 1974–2000 were largely shaped by the characteristics of disturbances. Economic financial interdependence across countries also played a role, although integration across countries remains surprisingly small compared with integration within countries. Looking forward, the international business cycle will likely become a more important driving force behind fluctuations in economic activity in major advanced countries because of the large scope for increased trade and financial interdependence. In particular, if cross-border wealth diversification continues to expand at a rapid pace, foreign assets and liabilities will soon account for substantial shares of household wealth; and with the continued internationalization of firms' operations through foreign direct investment, disturbances in other economies will increasingly affect profits and investment decisions in the domestic economy.

The dependence of the international business cycle on the characteristics of disturbances, which are unpredictable, raises important lessons for policymakers. Prudent policymaking requires the monitoring and assessment of macroeconomic developments and policies abroad, since the impact of shocks that are either global or highly correlated across countries on economic activity in other countries can often provide important information about their possible effects on the domestic economy. This monitoring and assessment of developments abroad also complements the insights from available multicountry macroeconometric models. The models tend to focus primarily on trade linkages, as many aspects of financial market linkages are not yet satisfactorily integrated. As a result, the historical effects of international business cycle linkages identified by these models (and most other analysis) often appear to be too small to explain the observed strong cross-country output correlations, leaving a high level of uncertainty as to the forces behind the international business cycle.

How Do Fluctuations in the G-7 Countries Affect Developing Countries?

The ongoing slowdown in the major industrial countries, which began in the United States last year, has had an increasingly important impact on developing countries. This essay looks at the key mechanisms through which business cycle fluctuations in the industrial countries affect developing ones—an area that to date has been relatively underresearched—and discusses how these effects have varied both by regions (focusing on Africa, Asia, the Middle East, and Western Hemisphere) and by analytic groups (particularly fuel and primary commodity producers). In common with the previous essay, output gaps for all countries are extracted using a bandpass filter, using annual data covering the period 1971–2000.[20] The industrial country cycle is proxied by the cycle in the G-7 economies, while the developing country aggregates are calculated from data on 66 countries (Table 2.5).[21]

[20]See Baxter and King (1999). The filter incorporates fluctuations with frequencies of between 2 and 8 years.

[21]Given the long sample period, the "developing country" group includes Korea, Israel, and Singapore, three countries currently classified as advanced economies due to their rapid development over the period. The composite data for regional or analytic groups has been calculated using the methodology described in the Statistical Appendix. (Similar results are obtained when the output aggregates are calculated using trade weights, as opposed to GDP valued at purchasing power parities weights).

Table 2.5. Countries Included in the Developing Country Aggregates

Africa		Asia		Middle East		Western Hemisphere	
Algeria	+	Afghanistan		Bahrain	+	Argentina	
Bostwana	*	Bangladesh		Egypt		Brazil	
Comoros		Bhutan	*	Iran	+	Chile	*
Djibouti		Cambodia	*	Iraq	+	Colombia	
Gabon	+	China		Israel		Costa Rica	
Gambia	*	India		Jordan		Dominican Republic	
Ghana	*	Indonesia		Kuwait	+	Ecuador	
Kenya		Korea		Libya	+	El Salvador	
Lesotho		Malaysia		Oman	+	Guatemala	
Mauritius		Myanmar	*	Qatar	+	Haiti	
Morocco		Nepal		Saudi Arabia	+	Jamaica	
Namibia	*	Pakistan		Syrian Arab Republic		Mexico	
Nigeria	+	Papua New Guinea	*	Turkey		Panama	
South Africa		Philippines		United Arab Emirates	+	Peru	*
Sudan	*	Singapore				Trinidad and Tobago	+
Swaziland	*	Sri Lanka				Uruguay	
Tunisia		Thailand				Venezuela	+
Zimbabwe	*						

Note: The symbols + and * indicate that the country is a fuel or primary product exporter, respectively.

Main Features of Output Fluctuations in Developing Countries

Output fluctuations in the G-7 and developing countries have been irregular in both intensity and duration, and have varied widely across regions (Figure 2.8). In contrast to the G-7 countries, where the amplitude of fluctuations has been declining over time, owing in part to the remarkable stability in North America during the 1990s, output fluctuations in the developing countries have increased slightly during the 1990s, largely as a result of a series of crises in emerging markets.[22] This was true in Asia, which—particularly when China and India are excluded—had experienced relatively moderate fluctuations during the previous two decades. There was also substantial output volatility in Western Hemisphere countries, reflecting the Mexican and Brazilian crises, although not to the extent experienced in the 1982 debt crisis. Elsewhere, the fuel and primary commodity exporters, and the associated developing country regions (the Middle East and sub-Saharan Africa) also experienced significant volatility.

As can be seen from Figure 2.8, output fluctuations in the developing countries as a group have been fairly synchronized and positively correlated with the output fluctuations in the G-7 countries for most of the 1971–2000 period (the most important exception being from the late 1980s through the mid-1990s). These linkages are quite important—simple regressions indicate that a 1 percent change in real GDP growth in the G-7 countries is associated with a 0.4 percent change in growth in developing countries, while a 1 percentage point decrease in the world real interest rate is associated with a 0.3 percent increase in developing country growth. The correlations between the cycles in the G-7 countries and in developing country regions or groups are significantly lower than among the cycles in the G-7 countries themselves, reflecting the developing countries' greater diversity in terms of structures of production and institutional arrangements and their greater vulnerability to external and domestic shocks. The magnitude of output fluctuations also tend to be larger in developing countries, thereby magnifying the impact of a given level of correlation.[23] For the period as a whole, output

[22]Agénor, McDermott, and Prasad (2000) document the main features of macroeconomic fluctuations for 12 middle-income developing countries.

[23]This is even more true at the individual developing country level. See Kose, Otrok, and Whiteman (2000).

Table 2.6. Output Correlation with the Group of Seven (G-7) Countries

	1971–2000	1971–80	1981–90	1991–2000
Africa	0.33	0.20	0.51	0.67
Asia	0.15	0.03	0.57	–0.04
Middle East	0.26	0.31	0.06	0.04
Western Hemisphere	0.32	0.42	0.16	0.18
Fuel exporters	0.32	0.41	–0.06	0.27
Primary goods exporters	0.07	0.07	0.08	0.21
Developing countries	0.45	0.52	0.62	0.10

Source: IMF staff estimates.

fluctuations in Africa, Western Hemisphere, and fuel exporters have been tied most closely with the advanced economies (Table 2.6), with a somewhat smaller correlation for Asian countries, and very little for primary commodity exporters.

The degree of correlation has, however, varied substantially over time, reflecting idiosyncratic shocks in both developing and the seven major advanced economies. Notably, rolling moving averages of these correlations indicate that the comovement between the G-7 countries and developing countries fell markedly in the 1990s (Figure 2.9). This decrease appears to stem from three main developments: the decoupling of the cycles in G-7 countries (caused by German reunification and underlying difficulties in Japan); the diversification of export markets away from the G-7 countries to other advanced and developing economies; and—as noted already—a series of emerging market crises, particularly in Asia and the Western Hemisphere. As the cycles in the G-7 countries became more synchronized in the late 1990s, however, output synchronization between these countries and developing countries has increased once again (Figure 2.9, top panel).

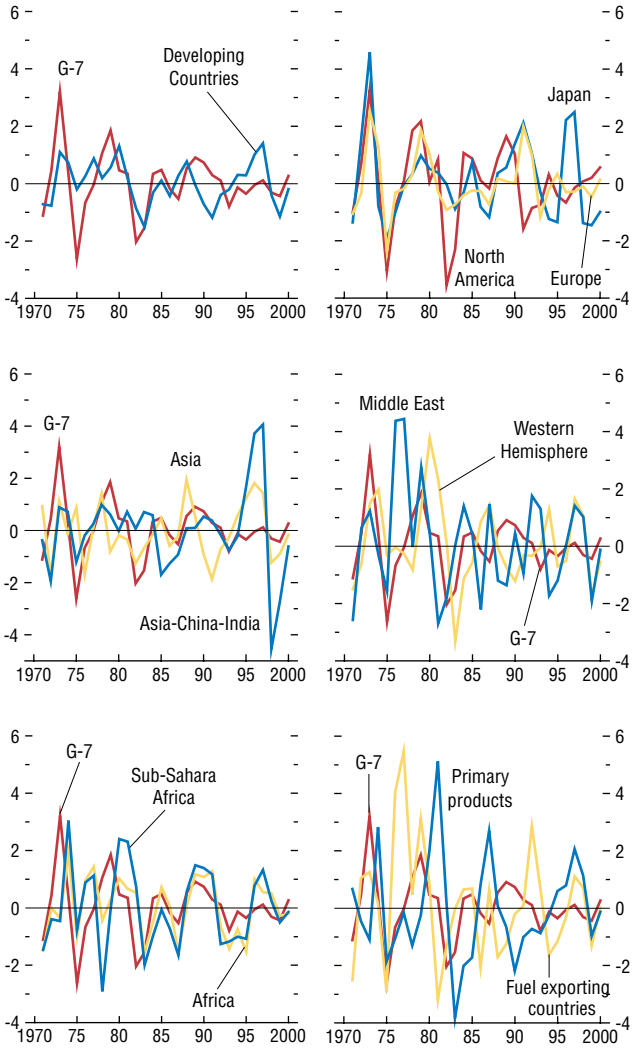
From the previous discussion, it follows that the relationship between the cycles of G-7 and developing countries is quite volatile and is affected strongly by idiosyncratic shocks in each group.[24]

[24]See Razin and Rose (1994) and Kraay and Ventura (2001) for a discussion of the causes of output volatility in developing countries; and Mendoza (1995) and Kose (forthcoming) for analyses of the sources of business cycle fluctuations in developing countries using dynamic stochastic models.

Figure 2.8. Output Fluctuations in the Group of Seven (G-7) and Developing Countries

(Percentage deviations from trend output)

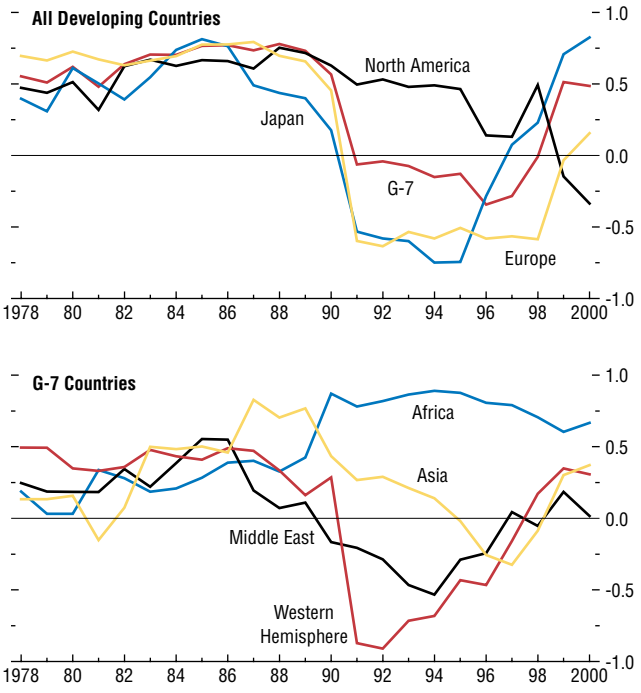
Output fluctuations have been irregular and varied widely across regions and analytic groups.



Sources: IMF, *International Financial Statistics*; and IMF staff calculations.

Figure 2.9. Output Comovements Between the Developing and the Group of Seven (G-7) Countries
(Rolling eight-year correlation windows)

Correlations indicate that output comovement between the G-7 countries and the developing countries and regions, with the exception of Africa, has weakened in the 1990s. However, correlations increased in the late 1990s.



Sources: IMF, *International Financial Statistics*; and IMF staff calculations.

At the same time, however, there is also clear evidence that there is also an important degree of comovement, and the remainder of this essay investigates this issue in more detail.

What Accounts for Output Comovement?

The academic literature has focused on three key factors that might explain the extent of output comovement between advanced and developing economies. These are:

- *Increased trade and financial integration with the global economy*, as increased international trade and financial flows facilitate the transmission of demand and productivity shocks across countries (Frankel and Rose, 1998). On the trade side, this is particularly important for those countries and regions that trade most with the G-7 countries.
- *The size of the developing country*, with larger countries expected to have higher comovements with the advanced economies after controlling for other factors such as openness (Head, 1995). This presumably reflects their more diversified economic structure, making them less susceptible to country specific-shocks.[25] This relationship between country size and output comovements appears stronger for high-income developing countries, although some small countries, such as those that rely on tourism, are also closely integrated with the cycle in the G-7 countries.
- *The size and volatility of capital inflows*. While capital account openness would generally be expected to increase global linkages, high and volatile capital flows can lead to credit booms and busts that reduce correlations with the cycle in G-7 countries (Gourinchas, Valdés, and Landerretche, 2001).

To assess the relative importance of these factors, the staff of the *World Economic Outlook* esti-

[25]Moreover, shocks affecting their globally integrated industries, such as information technology, could contribute to the world cycle (Kraay and Ventura, 2001).

Table 2.7. Developing Countries: Determinants of Output Comovement

	Comovement with	
	G-7 Countries	North America
Trade openness[1]		
10 percentage points of GDP rise	0.019 +	0.018 +
Trade intensity with G-7 countries[2]		
10 percentage points of exports rise	0.035 +	0.017
Country size[3]		
10 percent increase in the size of the average country	0.003 +	0.003 +
Capital account openness[4]		
Movement from close to open	0.056	0.019
Net private capital flows[5]		
10 percentage point of GDP rise	–0.025	–0.104 +

Note: The symbol + indicates that the coefficient is significant. The dependent variables are the correlation coefficients between the cyclical component of real GDP of country *i* and the G-7 countries and North America, respectively. The regressors include a constant, a dummy for the Western Hemisphere region, exports of fuel (as percent of total exports), and the regressors reported above. While both the constant and the dummy were statistically significant, fuel exports was not.

[1]Country *i's* ratio of total exports plus imports over GDP.
[2]Country *i's* exports to the G-7 countries over its total exports.
[3]Country *i's* U.S. dollar GDP over global U.S. dollar GDP.
[4]Country *i's* restrictions on capital account transaction.
[5]Net private flows to country *i*.

mated a linear cross-section model, in which the correlation between the cycles of 58 individual developing countries and the G-7 economies was regressed against the degree of trade openness, the share of trade with the G-7 countries, the share of fuel exports, the size of the country, a measure of capital account openness, the level of net private capital flows, and a Western Hemisphere dummy.[26] The exercise was also undertaken using the correlation with North America alone. The results, shown in Table 2.7, confirm the importance of trade openness and trade intensity with the G-7 countries; and the size of the country is also found to be significant (although the impact is relatively small). The variables for capital account restrictiveness and the level of net private capital flows are also correctly signed, although they were not statistically significant.

How Are External Shocks Transmitted to Developing Countries?

The previous discussion has highlighted several structural factors explaining the degree of output comovement over time. The remainder of this essay focuses in more detail on the trade and financial channels through which shocks can be transmitted to developing countries. The relative importance of these channels depends on the nature of the external shocks and the characteristics of the developing regions (see Box 2.2).

Trade Channel

There are two major ways for an external shock to be transmitted through international trade to developing countries: by affecting export volumes, and by changing the terms of trade. Typically, a slowdown in the advanced economies weakens the demand for developing countries' exports, as shown by the generally strong positive correlation between the volume of exports from individual developing countries and the business cycle in the G-7 countries (Figure 2.10, upper panel). Import volumes, by contrast, are not highly correlated with fluctuations in G-7 countries.

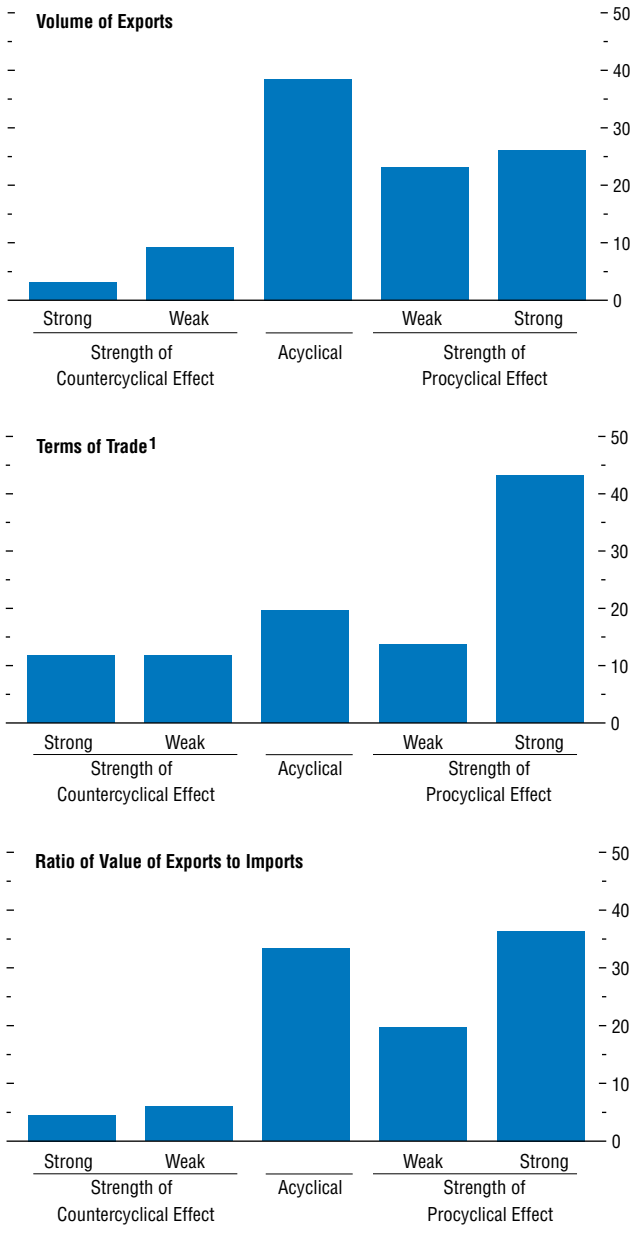
With the important exception of oil exporters, there is a strong positive correlation between the terms of trade and the business cycle in the G-7 countries (Figure 2.10, middle panel).[27] This positive correlation reflects conditions in both manufacturing and non-oil commodity prices. Many developing countries produce low value added manufactures for which competition is fierce, and prices tend to fluctuate in tandem with demand from industrial countries—the ma-

[26]All variables were averaged over the period 1971–2000. Other regional dummies were also included as regressors, but were dropped from the final specification because they were statistically insignificant. The Western Hemisphere dummy apparently is significant because, in contrast to other regions, dependence on the markets of the seven major advanced economies has increased over time.

[27]See also Mendoza (1995) and Kose (forthcoming).

Figure 2.10. Trade Developments in Developing Countries and the Cycle in the Group of Seven (G-7) Countries
(Histogram of Correlation Coefficients; axis indicate percent)

For a large number of countries in the sample, there is a procyclical association between their volume of exports, terms of trade, and trade balance and the G-7 cycle.



Sources: IMF, *International Financial Statistics*; and IMF staff calculations.
[1]Excludes fuel producing countries.

jor market.[28] During the recent slowdown, developments in the microprocessor market have clearly exemplified this phenomenon (see Appendix I of Chapter I). In addition, while individual commodity prices are often dominated by supply factors, aggregates of non-fuel commodity prices are affected by the cycle in the advanced economies. This relationship is especially relevant for metals whose prices are closely related to the cycle in industrial production.[29] Supply factors and the impact of changes in the oil price on activity in advanced economies explain the weak negative correlation between oil prices and the cycle of the G-7 countries.

In sum, a slowdown in the G-7 countries is normally associated with both a reduction in export volumes and a terms of trade deterioration in most developing countries, and, therefore, a weakening in their trade and current account balances. Taking these two factors together, there is a generally positive correlation between the ratio of the value of exports to imports in the developing countries and the business cycle in the G-7 countries (Figure 2.10, lower panel).

Financial Channel

External shocks can be transmitted to the developing countries through changes in the size and composition of capital flows, as well as in financing costs. Many small, poor countries rely on official flows for financing. A recent study reveals that, except for a number of African countries, these flows are volatile and are positively correlated with the cycle in donor countries, providing an additional procyclical impulse to countries relying on official financing.[30] More-

[28]Baxter and Kouparitsas (2000) find that a country's terms of trade volatility is, among other factors, related to its trade structure in terms of commodity composition and direction of trade.

[29]The importance of demand factors can also be induced from the persistence of commodity price movements and positive correlations of prices of individual commodities. See Deaton (1999).

[30]See Pallage and Robe (forthcoming). This study also reported that net official development assistance, over the 1969–95 period, averaged 12.5 percent of recipients' GDP for the African countries and 4 percent of recipients' GDP for the countries outside Africa.

Box 2.2. Channels of Business Cycle Transmission to Developing Countries

As developing countries become more integrated into the world economy, macroeconomic fluctuations in these countries have become increasingly affected by external influences, including business cycles in advanced economies. These influences can be transmitted through three basic channels: trade, finance, and direct sectoral linkages. This box provides a brief summary of these three channels, which are closely interrelated, and discusses how their relative importance has evolved in recent years.

The Trade Channel

- *Foreign demand shocks.* Business cycles in advanced economies have a significant effect on their demand for developing country commodities, intermediate goods, and finished products. As their trade relationships with industrial countries have expanded rapidly in recent decades, developing countries have become increasingly affected by aggregate demand conditions in industrial countries. This is true of many Asian and Latin American countries that have strong trade relationships with industrial countries. Countries in sub-Saharan Africa that largely rely on a narrow set of commodity exports and have limited trade with industrial countries, however, are much less directly influenced by business cycles in these countries.[1]
- *Aggregate productivity shocks.* For many developing countries, technology transfers occur mainly through imports from industrial countries. Technological spillovers and their effects on macroeconomic fluctuations therefore tend to be stronger for countries that have strong trade relationships with industrial countries, although this also depends on the nature of products traded. Industrial country productivity shocks have been estimated to account for 5 to 20 percent of the variation in developing country output (see Kouparitsas, 1996).
- *Terms of trade fluctuations.* Some authors have estimated that terms of trade shocks could account for as much as 50 percent of output fluctuations in developing economies.[2] These shocks include variations in commodity prices that are often influenced by cyclical conditions in advanced economies. The volatility of commodity prices tends to have large spillover effects within developing countries that rely on exports of commodities and other primary products for much of their export earnings (and, in some cases, for a significant fraction of their national incomes). In this vein, commodity price shocks have been shown to be important determinants of investment and output fluctuations among commodity-exporting African countries (Deaton and Miller, 1995; and Kose and Riezman, 2001).

The Financial Channel

- *Private capital flows.* Foreign direct investment and other forms of capital flows from industrial to developing countries have expanded considerably in recent decades. Many developing countries now rely heavily on external financing for their domestic investment and current account deficits (see Chapter IV). The magnitude and volatility of capital flows from industrial countries can therefore have a significant influence on developing country investment and output. The effects of capital inflows and their reversals on domestic activity in developing economies are well documented (see Mendoza, 2001). The phenomenon of financial contagion also implies that macroeconomic disturbances in one or a few developing countries could get transmitted rapidly via the financial channel to other developing countries. Rising correlations of stock market fluctuations, as evidenced by recent shocks to stock prices in the technology sector, are another aspect of this phenomenon. As developing countries strengthen their linkages to international financial markets,

[1]See Agénor, McDermott and Prasad (2000); Hoffmaister, Roldos, and Wickham (1998); and Ahmed and Loungani (forthcoming).

[2]Mendoza (1995); his sample includes 23 developing countries and covers the period 1961–90.

Box 2.2 *(concluded)*

the financial channel is likely to become an increasingly important channel of transmission of fluctuations to these countries.

- *Aid and other financial flows.* The volatility of aid flows can also affect macroeconomic fluctuations in some developing countries. Bulir and Hamann (forthcoming) document that, in many sub-Saharan African economies, which are generally heavily dependent on aid, aid flows are both volatile and positively related to their own cycle.
- *Global financial market conditions.* Changes in world interest rates and investors' appetite for risk, along with perceptions of riskiness of investments in developing countries, are likely to influence the quantity of capital flows to these countries. The ability of developing countries to conduct countercyclical macroeconomic policies could also be constrained by externally generated changes in interest rates and spreads. Existing evidence indicates that the effects of world real interest rate shocks on output volatility in most developing countries are rather small. However, one study finds that this effect tends to be much greater for countries with a high level of external indebtedness, while another finds that changes in U.S. interest rates significantly affect growth in some developing countries, with debtor countries again tending to experience a much larger impact (see Kose, forthcoming; and Arora and Cerisola, 2000).

Sectoral Interdependence

- *Similarities in economic structure.* These similarities imply that sector-specific shocks—including productivity shocks and shocks to the composition of import demand from industrial countries—tend to have similar effects on aggregate fluctuations across national borders. Several studies find that the high degree of business cycle synchronization across the major East Asian economies compared to those in Latin America may in large part be attributable to similarities in the sectoral composition of output in these countries (Imbs, 1999; and Loayza, Lopez, and Ubide, 1999).
- *Shocks to the technology sector.* This sector is relatively important in many emerging market economies, particularly those in East Asia, and shocks to this sector emanating from advanced economies have had a significant impact on aggregate output fluctuations in those countries. Chapter I discussed the importance of the technology cycle for East Asian economies during the current downturn.

Developing countries are becoming more closely linked to industrial countries through trade and financial linkages as well as increasing similarities in industrial structure. These forces of global integration are likely to result in rising commonality of business cycle fluctuations across industrial and developing countries. Recent crises in emerging market economies show that, while the financial channel plays an increasingly important role in transmitting business cycles to these countries, the other channels associated with trade and sectoral interdependence also significantly affect macroeconomic fluctuations in developing economies.

over, the study finds only a few differences between the cyclical behavior of bilateral and multilateral assistance, although the latter is more volatile than the former.

For most other countries, the main source of finance is through private markets, and—as discussed in Chapter IV—these linkages have been increasing rapidly over time, suggesting that private capital flows are becoming more important.[31] At the same time—and crucially from the perspective of business cycle linkages—the composition of flows has also changed markedly. In

[31]Nevertheless, only a few middle-income developing countries have received a very large fraction of these inflows.

the 1970s, "other" net capital flows, largely comprising net bank loans, were the dominant form of finance; in the 1980s, capital flows in general were weak, although foreign direct investment remained relatively stable. The 1990s, in contrast, saw a sharp increase in foreign direct investment flows—often associated with "greenfield" projects, but increasingly also associated with merger and acquisition and privatization of existing businesses.[32] This was accompanied by a surge in portfolio flows, following the development of emerging bond markets in the late 1980s and of emerging equity markets shortly thereafter.

In terms of the cyclical behavior of capital flows, an important distinction can be made between interest-bearing instruments and equity finance. The former comprise bank loans and bonds while the latter includes corporate foreign direct investment and the equity portion of portfolio flows.[33] For interest-bearing debt, the cost of this capital depends on interest rates in advanced economies and the additional spread charged to developing countries. As seen in Figure 2.11, net private capital flows to developing countries since the 1980s have been negatively correlated with the world real interest rate. A simple linear regression relating these two variables suggests that a 1 percent decline in international real interest rates is associated with a rise in capital inflows to developing countries of 0.3 percent of GDP since the early 1980s. One recent study confirms this negative relationship for 15 large developing countries over the 1990s.[34]

This countercyclical behavior plausibly reflects the fact that lower interest rates both make such

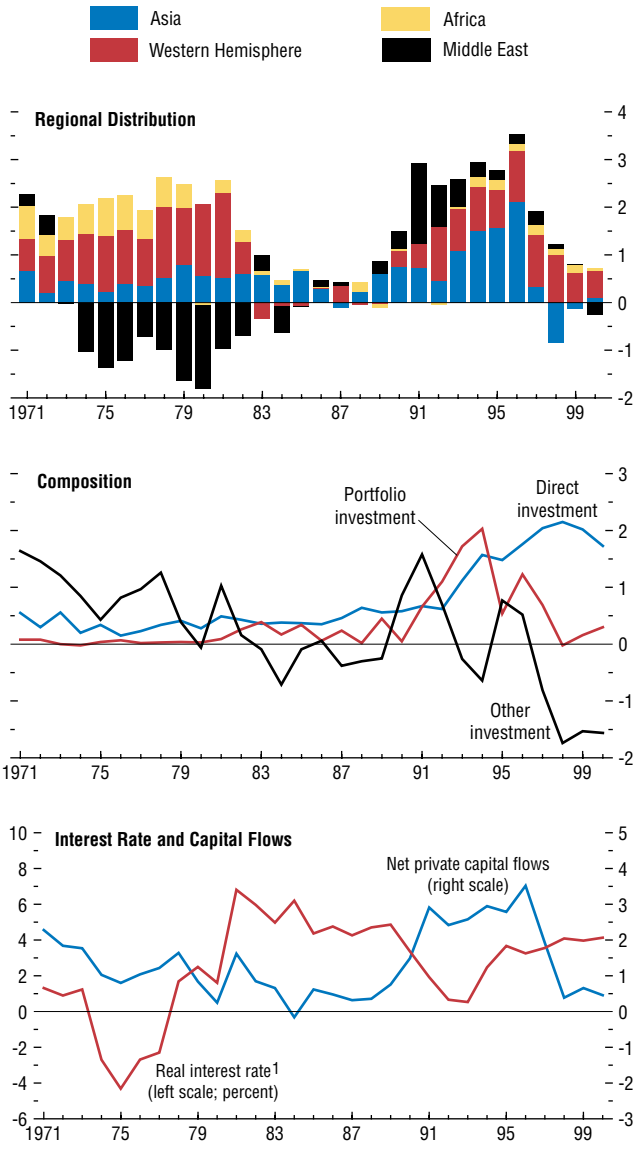
[32]Albuquerque (2001) provides evidence that the foreign direct investment share of developing countries with poor access to capital markets is higher than that for other countries.

[33]Unfortunately, the split between portfolio bond and equity flows is difficult to obtain on a consistent basis.

[34]Montiel and Reinhart (2001) find evidence that capital flows also respond to short-run macroeconomic policies—such as sterilized intervention and, to lesser degree, capital controls—of the developing countries.

Figure 2.11. Developing Countries: Net Private Capital Flows
(Percent of GDP; unless otherwise noted)

Net external financing has increased over time and its composition has switched, in the past two decades, in favor of foreign direct investment.

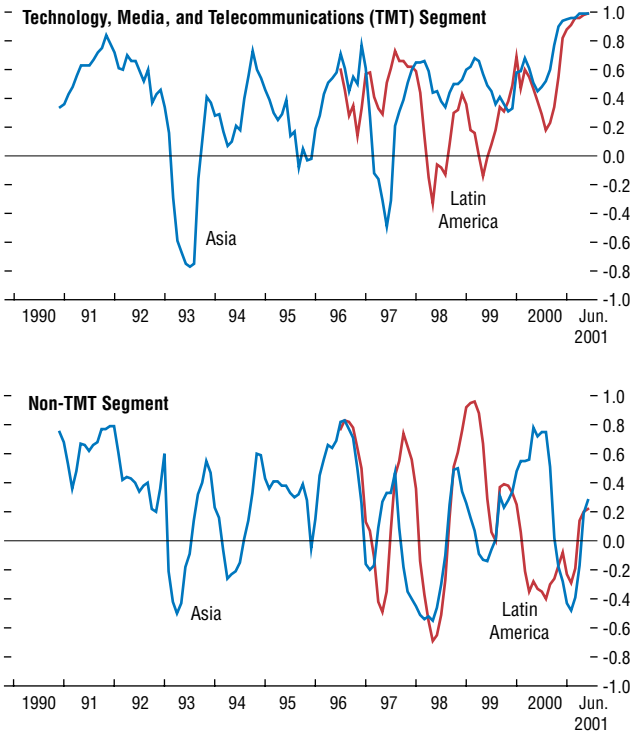


Sources: IMF, *International Financial Statistics*; and IMF staff calculations.
[1]The world real interest rate is proxied by the difference between the Euro-dollar rate in London and the rate of inflation in the G-7 countries.

Figure 2.12. Stock Returns Comovement Between the Developing and the Group of Seven (G-7) Countries[1]

(Correlation between the G-7 and other markets; rolling 12-month windows)

Correlations between the technology stock returns in the G-7 countries and other developing markets have been high and increased further in the last few years. But correlations between the non-technology stocks returns have been weaker and more volatile.



Sources: Primark Data Stream; and IMF staff estimates.
[1]Twelve-month returns.

financing more attractive and reduces market spreads, as the cost of servicing existing debt is reduced. It is difficult to obtain long time series, as spreads are not available for bank loans. Examining bond spreads over the 1990s, a recent study by the IMF finds that emerging market bond spreads are positively linked to the U.S. Federal Funds interest rate, 10-year U.S. treasury interest rates, the U.S. high yield interest rate spread, and the performance and volatility of U.S. stock market indices, although country-specific factors also play an important role in determining such spreads (IMF, 2001b). Given the short time period, however, there are questions about the strength of the positive relation between the Federal Fund interest rate and emerging market bond spreads, as this relation seems to be most evident when there are extreme events in emerging markets.

In contrast, equity-based flows are much less likely to be countercyclical. Foreign direct investment inflows, indeed, show relatively little cyclical variation (Figure 2.11), although related flows associated with operations such as exchange rate hedging can show up elsewhere in the financial accounts. Moreover, portfolio equity flows are likely to be positively related to the business cycle, since equity markets tend to be highly correlated and the correlation between advanced and emerging market equity prices has been rising over time.[35] Figure 2.12 highlights the close association between returns across markets, particularly for IT shares. In consequence, the cyclicality of capital flows is likely to depend increasingly on their composition; and for those regions that depend relatively more on portfolio equity flows—such as Asia—there is a greater chance that capital flows could be procyclical.

Implications for the Current Cycle

The discussion above has highlighted that developing countries' output comovement with the

[35]See IMF (2001b), and Froot, O'Connell, and Seasholes (2001).

advanced economies depends on trade integration, the composition of their trading partners and export products, and the size and composition of the net private capital flows. These linkages are quite strong—for the period since 1971 a linear regression suggests that a 1 percent reduction in output growth in the G-7 countries is associated with a 0.4 percent reduction in output growth in the developing countries while a 1 percentage point reduction in the world real interest rate is associated with a 0.3 percent increase in output growth of the developing countries. To the extent that output growth in the G-7 countries falls faster than the international real interest rates, as has been the case of a typical recession in these countries, output growth in the developing countries as a whole will be negatively affected. How do these considerations feed into the current outlook?

The emerging markets of Asia are probably most affected by the current slowdown in the industrial countries. On the trade side, both export volumes and prices (particularly in IT products) are sensitive to slower growth in the G-7 countries, while the region's relatively high dependence on equity finance provides a further channel for negative spillovers. Elsewhere, the impact of the business cycle in the G-7 countries on developing regions may be smaller. The main impact in Africa will probably come through declining terms of trade and, for a number of countries, lower official financing flows, while the impact in the Middle East and other fuel exporters largely depends on developments in oil prices.

In Mexico and the remainder of Central America, the impact of the current slowdown in G-7 countries will be negative, as the trade channel clearly dominates. Elsewhere in the Western Hemisphere, however, the combination of relatively limited trade links, high levels of interest bearing debt, and the need for significant bond financing could mean that the benefits of lower interest rates offset the negative effects through activity. In practice, however, these benefits are being limited by several factors, including the high level of spreads reflecting problems in specific countries, and the strength of the U.S. dollar—the currency in which most debts are denominated—which is increasing debt burdens. Moreover, the recent slowdown in foreign net investment to these countries has further complicated the financing position of the region.

The World Trading System: From Seattle to Doha

The failure to start a new round of multilateral trade negotiations at the third ministerial conference of the World Trade Organization (WTO) in Seattle in 1999, owing to major divisions both between industrial and developing countries and among industrial countries, was a setback for the multilateral trading system. However, after a hiatus, momentum is gathering in the WTO for the start of a new round of negotiations, possibly to be launched at the ministerial conference in Doha, Qatar in November.[36] The negotiators will face significant challenges, including the desire by some countries to bring new and complicated policy issues under multilateral rules and the need to take into account the interests of a large and diverse membership of countries. But the benefits are even larger. At stake are enhanced global growth prospects from further trade liberalization (where, despite past successes, much remains to be done) and the reinforcement of free trade as an element of globalization that can continue to raise living standards in rich and poor countries alike. This essay takes stock of the current state of the world trading system and presents the issues that are likely to form the core of discussions for the next round.

Global Trade Growth

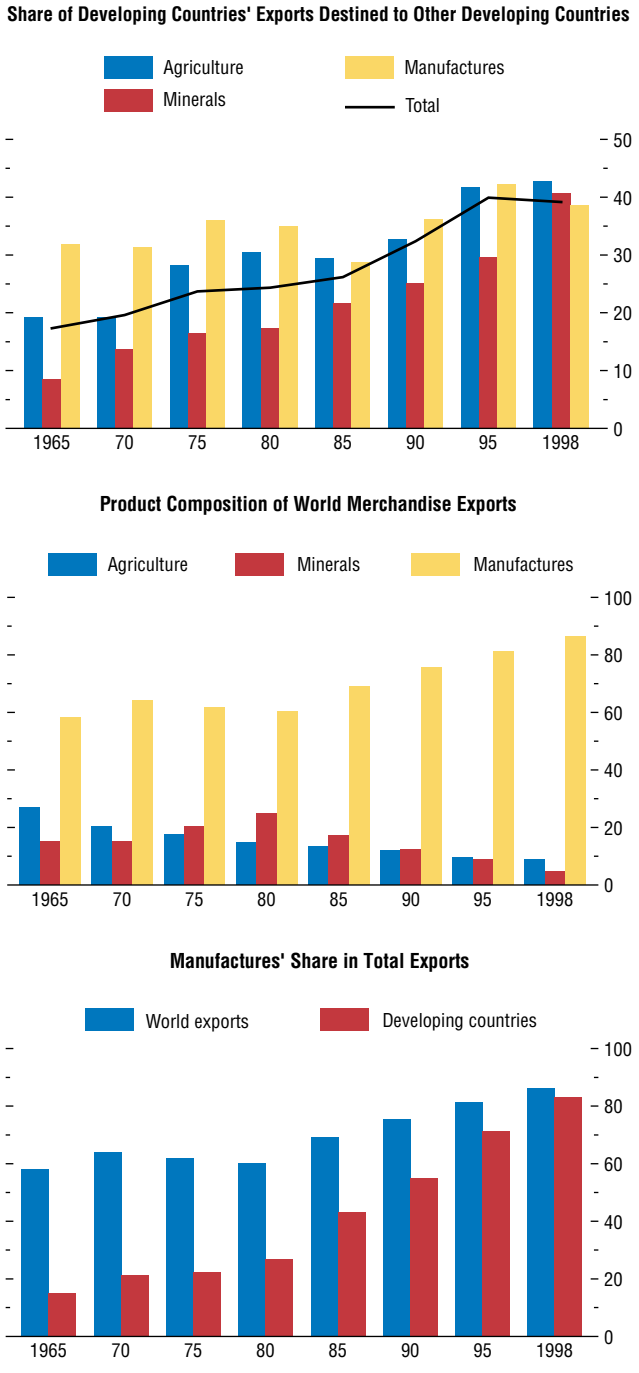
The extraordinary growth of the global economy since World War II has been driven, to

[36]See Chapter V of the October 1999 *World Economic Outlook* for a discussion of trends and issues in the global trading system during the 1990s.

Figure 2.13. World Trade and Developing Countries

(Percent of total)

Developing countries have become more important players in world trade and trade between them has increased significantly.



Source: Global Trade Analysis Project (GTAP) database, version 5.

some extent, by the liberalization of trade.[37] The cornerstone of this liberalization has been eight rounds of multilateral trade negotiations, of which the Uruguay Round, completed in 1994, is the most recent. Industrial countries have liberalized mainly within this multilateral framework, although regional arrangements, such as the European Union (EU) and North American Free Trade Agreement (NAFTA), have also been important. Historically, developing countries have relied less on multilateral trade rounds, pursuing unilateral liberalization as they shifted away from the import substitution policies of the 1960s and 1970s. More recently, many of these countries have complemented unilateral liberalization with regional trading arrangements and commitments undertaken in the Uruguay Round. By 1999, there were more than 140 regional trade agreements in force, most of them including developing or transition economies.

Partly as a result, during the past 20 years, the volume of world trade grew twice as fast as world real GDP (6 percent versus 3 percent), deepening economic integration. Developing countries as a group achieved the fastest expansion of trade and, as a result, have become more important players in world trade, including as markets for each other's products. They now account for one-third of world trade, up from about a quarter in the early 1970s, and 40 percent of their exports now go to other developing countries (Figure 2.13). Developing countries have also contributed to a shift in world trade toward manufactures and commercial services, particularly emerging market countries that have participated in the geographic dispersion of production processes and the rapid expansion of intra-

[37]See "Postwar Economic Achievement" in Chapter VI of the October 1994 *World Economic Outlook*. Also, the close connection between trade and growth has been well documented. See, for example, Bhagwati (1978) on individual country experiences; on cross-country growth analysis, see Sachs and Warner (1995), Edwards (1998), and Frankel and Romer (1999). Rodriguez and Rodrik (2000) dispute the cross-sectional statistical evidence on the relationship between openness and growth, and Rodrik (1999) concludes that "...openness is part of a development strategy; it does not substitute for it."

industry trade. However, a large number of developing countries did not participate in these trends. Poorer developing countries, especially in Africa, have seen their share of world trade decline, and many of them continue to be dependent on traditional commodity exports.[38] These countries, which generally maintain relatively restrictive trading regimes, comprise about 75 developing and transition economies that are eligible for concessional lending from the IMF and the World Bank, including virtually all the least-developed countries and the heavily indebted poor countries.

Trade Policies

Despite the failure to initiate a new trade round at the WTO Ministerial conference in Seattle, global trade has continued to expand, and there has been no major sign of backtracking on Uruguay Round commitments, which are being broadly implemented on schedule. This translates into more open markets as tariffs are reduced and nontariff barriers, such as voluntary export restraints and restrictive licensing, are eliminated. The (unweighted) average post-Uruguay Round bound tariff rate in industrial countries for manufacturing products is now quite low, at around 4 percent, whereas for developing countries the figure stands at 20 percent, although applied tariffs are lower.[39]

Countries are increasingly pursuing trade liberalization through regional trading arrangements. In the six years since the establishment of the WTO, 90 new regional trading arrangements have been reported to the WTO, compared to 124 during the first 46 years of the General Agreement on Tariffs and Trade (GATT) system (1948–1994), and many of the 124 were also reported only since the early 1990s. This process has continued since Seattle. In addition to the network of agreements with EU accession candidates and the Mediterranean countries, the EU has recently concluded free trade agreements with Mexico and South Africa and launched negotiations with MERCOSUR. In the Americas, the United States and 33 other countries have established a timetable for negotiations to form a Free Trade Area of the Americas by 2005. In Asia, major traders such as Korea, Japan, Singapore, and Hong Kong SAR are moving for the first time toward bilateral free trade agreements. In Africa, efforts to promote regional trade integration have intensified. There has been substantial progress in implementing a customs union in the West African Economic and Monetary Union, particularly since January 2001 and, despite some difficulties, in the Central African Economic and Monetary Community, and a free trade area has been established in part of the Common Market for Eastern and Southern Africa.

Unilateral liberalization, a major avenue used by developing and transition economies to liberalize their trade regimes, has also continued in the past two years. Despite the 1997–98 crisis, trade liberalization actually accelerated in Asia, particularly for countries with IMF-supported programs (such as Korea and Indonesia). In Africa, South Asia, the Caribbean and, to a lesser extent, the Middle East, many countries continued to open their trade and investment regimes unilaterally. Central European countries have also generally reduced their tariff rates in preparation for accession to the EU and the adoption of the Common External Tariff.

But not all developments have been positive. There was a clear trend toward increased antidumping activity, both by industrial and developing countries (Figure 2.14), and growing concern about nontransparent barriers in the form of technical and health standards. Industrial countries have backloaded their WTO commitments in textiles and clothing made in the context of the Uruguay Round, so that the majority of quotas will only be dismantled in 2005. In

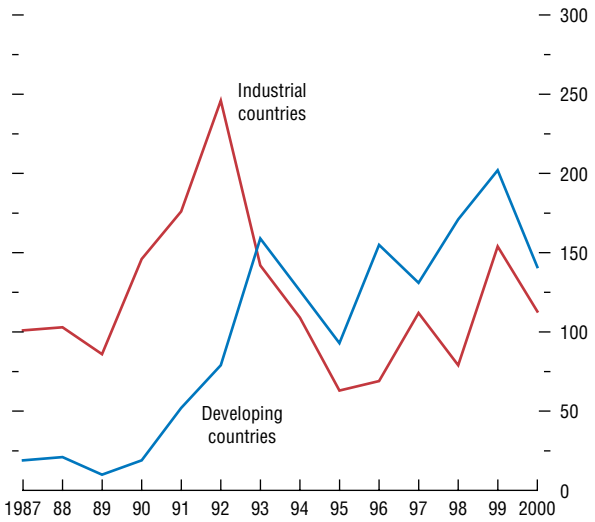
[38]The trade performance of sub-Saharan Africa was discussed in Chapter II of the May 2001 *World Economic Outlook*.

[39]Reflecting liberalization beyond WTO Commitments, applied tariffs in developing countries average 13 percent. The scope that this provides to raise tariffs to bound rates increases uncertainty regarding market access conditions.

agriculture, the tariffication of quantitative restrictions under the Uruguay Round has resulted in extremely high tariff rates, and minimum access levels negotiated during the Uruguay Round have yet to be reached; and while direct export subsidies have been reduced, total producer support to farming in OECD countries has changed little compared to the base period (1986–88) for the Uruguay Round (Figure 2.15). In addition, the spread of regional trading arrangements is seen by some as potentially detrimental to the world trading system, particularly in the context of the lack of progress on the multilateral front.[40]

Some regional initiatives have suffered delays or setbacks. Trade liberalization in the member countries of Asia-Pacific Economic Cooperation (APEC) seems to have lost momentum, particularly as members reached the stage of making market access concessions. Beset by a stalling economy and financial difficulties, Argentina has recently begun to levy tariffs on previously duty-free imports from other MERCOSUR members. In the Association of South East Asian Nations (ASEAN), resistance has emerged regarding the reduction of tariffs on politically "sensitive" products (automobiles, for example). In Africa, the number of overlapping and internally inconsistent initiatives, particularly in eastern and southern Africa, is a source of concern.

Figure 2.14. Number of Antidumping Investigations Initiated



Source: World Trade Organization (WTO).

Global Trade Issues After the Uruguay Round

The Uruguay Round was one of the most impressive multilateral trade negotiations in terms

[40]Regional trading arrangements, appropriately designed, can provide net benefits from trade creation, offer an intermediate step toward a broader process of integration into the world economy, and lock-in reciprocal liberalization. At the same time, they discriminate against nonmembers and can lead to trade diversion and a loss of overall competitiveness. These risks are mitigated when regional arrangements are outward oriented and complemented by unilateral liberalization and periodic multilateral trade rounds. See Vamvakidis (1999) for an assessment of the relative merits of regional versus broad liberalization and World Bank (2000) for an in-depth analysis of the costs and benefits of regional trade agreements.

of scope and outcomes. Capping the achievements of previous rounds, it will virtually eliminate nontariff barriers by 2005 and cut tariffs substantially. The gains from lowering trade barriers alone have been estimated at around $200 billion a year, of which between $50 and $90 billion will go to developing countries.[41] The Uruguay Round also created the WTO, brought international trade rules to areas previously excluded or subject to weak rules (agriculture, textiles and clothing, services, and trade-related investment measures and intellectual property rights), and strengthened the dispute settlement mechanism.[42] In addition, in contrast to previous negotiations, developing countries played a much more active role and accepted the same obligations as other WTO members as part of the "single undertaking" of the round. Finally, the Uruguay Round provided for a future work program—the so-called built-in agenda—including a relatively rapid resumption (by January 2000) of multilateral negotiations to carry forward liberalization in agriculture and services—the core elements of the agenda—and reviews of the agreements on intellectual property rights, trade-related investment measures, and the dispute settlement mechanism.

Despite these achievements, the multilateral trading system faces important challenges. First, even after full implementation, protection will remain concentrated in areas of interest to developing countries. While rules and disciplines were extended to agriculture and services, little liberalization was achieved in these sectors. In manufactures, high tariffs will apply to textiles and clothing after quotas are finally dismantled in 2005, and other labor-intensive products still face tariff peaks and tariff escalation that constrain developing countries in their efforts to ex-

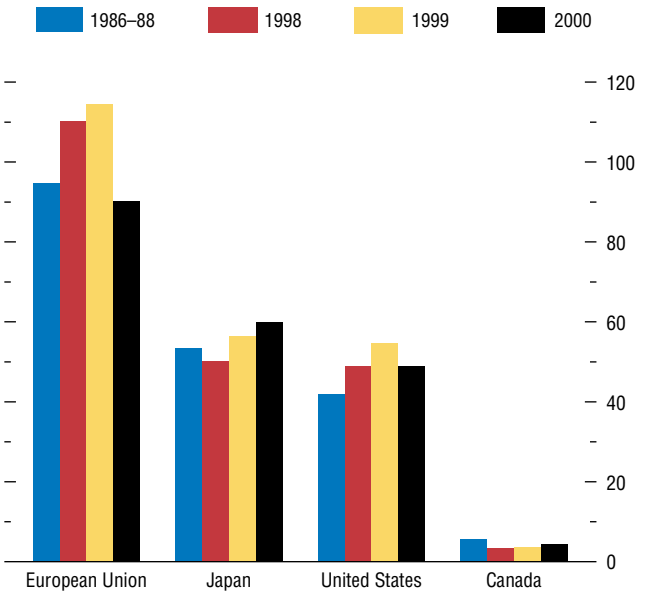
[41]Kirmani and others (1994) provide a detailed review of the Uruguay Round.

[42]The WTO incorporated a number of agreements, including three multilateral trade agreements—the General Agreement on Tariffs and Trade, The General Agreement on Trade in Services, and the Agreement on Trade-Related Aspects of Intellectual Property Rights—and procedures for dispute settlement.

Figure 2.15. Selected OECD Countries: Agricultural Producer Support, 1986-2000

(Billions of U.S. dollars)

Producer support to farming has remained high in most OECD countries.



Source: OECD, *Agricultural Policies in OECD Countries* (Paris: OECD, 2001).

pand and diversify their exports into higher value-added products. Moreover, developing countries themselves have high import tariffs; average applied tariffs on industrial goods are three times as high as those of industrial countries. These barriers impose costs on all countries and provide an opportunity for substantial gains from reciprocal trade liberalization (Box 2.3).

Second, the changing realities of international commerce have revealed the need to update and adapt the architecture of the trading system. With the deepening of economic integration through international trade and investment flows and the declining importance of restrictions at the border, attention has shifted to so-called new issues such as behind-the-border measures that limit the contestability of markets. Thus, there have been calls—variously by industrial and developing countries—for new or strengthened rules under the WTO dealing with competition policy, investment, government procurement, antidumping and other safeguard measures, health and product standards, and e-commerce. Also, as trade and the process of globalization have become a more visible part of industrial country economies, civil society has sought the incorporation of so-called non-trade concerns such as labor and environmental standards into the international trading system (Box 2.4).

A third challenge relates to implementation and institutional issues of concern to developing countries. Many developing countries feel that they are bearing the costs of implementing difficult and complex agreements in areas such as trade-related intellectual property rights and customs valuation without seeing the benefits of improved market access in areas of interest to them. Poorer developing countries have had trouble implementing these and other commitments because of a lack of institutional capacity and financial resources. They note that nonbinding pledges by industrial countries to provide significant technical assistance have yet to materialize. In addition, the governance and negotiating procedures (including a lengthy and complex accession process) of the WTO make it difficult for many poor countries to pursue their legitimate interests.

These challenges, each in their own way, contributed to the impasse in Seattle. The diverse interests of the membership proved difficult to consolidate into a single negotiating agenda. The European Union and Japan promoted their concept of a comprehensive round embracing many of the new issues but downplaying agricultural liberalization, while the United States and some other countries proposed a more limited approach centered on the built-in agenda with greater emphasis on agricultural liberalization and some selective additions, such as labor standards. Some developing countries preferred to focus on the implementation of existing Uruguay Round Agreements, while others felt that a comprehensive round should include negotiations on antidumping. The discussion rapidly stalled on a wide range of issues related to agriculture, the implementation of certain Uruguay Round Agreements, new or non-trade issues (investment, competition policy, the environment, and labor standards), and antidumping. Inadequate preparation for the launching of the round, a lack of transparency and inclusiveness in the prenegotiations, and the absence of a spirit of engagement and compromise contributed to the impasse. As a result, many developing countries felt excluded from the process and believed that their concerns and institutional and capacity constraints were not fully recognized.

Since Seattle, the WTO has sought to restore confidence in the multilateral trading system, with a particular focus on developing countries. An Implementation Review Mechanism has been put in place to examine, on a case-by-case basis, requests for the extension of time periods for implementation of Uruguay Round commitments, and there have been renewed efforts to improve the effectiveness and coordination of technical assistance to poorer countries. Ongoing discussions have been initiated to improve the WTO's negotiating procedures so that developing countries are not excluded from the process, and more time has been available for

Box 2.3. Potential Welfare Gains from a New Trade Round

Even after eight rounds of multilateral trade negotiations and the full implementation of commitments under the Uruguay Round, significant protection will still exist in industrial and developing countries.[1] As further reductions in trade barriers would be the quintessential element of a new trade round, the question of the potential welfare gains from reductions in the remaining barriers to trade and their distribution across countries naturally arises.

Quantifying the welfare gains and losses from trade liberalization is a difficult task. The results depend critically on the underlying model, the specification and quantification of trade barriers (which is notoriously difficult, especially for services), and the scope and extent of liberalization. Accordingly, available estimates of welfare gains of various trade policy options differ widely. In addition, many economists believe that these estimates significantly underestimate the true welfare gains because they do not adequately capture important dynamic effects, such as the availability of new goods (see Romer, 1994; and Feenstra, 1995). With these caveats in mind, this box summarizes some representative estimates of the welfare gains from full trade liberalization after the implementation of all commitments under the Uruguay Round.

The welfare gains reported below are based on simulations of two widely used computable general equilibrium models, which represent conservative and liberal estimates of the gains from trade liberalization. The Global Trade Analysis Project (GTAP) model is a static model with perfect competition, in which the welfare gains are limited to the reallocation of existing resources—capital and labor—according to each country's comparative advantage.[2] The Michigan Model, in contrast, incorporates imperfect competition in the manufacturing and services sectors.[3] This tends to generate larger welfare gains in these sectors since trade liberalization also reduces prices through greater competition and increasing returns to scale.

The potential global welfare gains from eliminating remaining trade barriers after the Uruguay Round are substantial (see the Table). The calculations suggest that full merchandise trade liberalization in 2005 would yield annual welfare gains between $146 and $489 billion (½ to ¾ percent of GDP) for industrial countries and between $108 billion and $188 billion (1¼ to 3 percent of GDP) for developing countries. As a percent of GDP, the gains for developing countries are larger compared to industrial countries because their trade barriers and associated distortions are, on average, significantly higher.

The simulation results are also consistent with one of the basic results from international trade theory: countries gain from trade under almost any conditions and the largest welfare gains from trade liberalization accrue to the countries that actually liberalize rather than to their trading partners. For example, according to GTAP model-based simulations, if only developing countries were to liberalize fully their merchandise trade regime in 2005 (post-Uruguay Round), they would reap annual welfare gains of $65 billion compared to $108 billion with worldwide full liberalization, that is, about 60 percent of the gains.[4]

Turning to the gains from worldwide trade liberalization by sector, free trade in agricultural products would yield important welfare benefits for developing countries according to both

[1]IMF (2001a) summarizes the current state of trade restrictions in the world economy.

[2]See Anderson and others (2000) for the simulations and Hertel (1997) on the model.

[3]See Brown and others (2001) for the simulations and look for the model on the Internet at www.fordschool.umich.edu/rsie/model.

[4]Two recent papers by Zarazaga (1999, 2000) that survey the quantitative welfare benefits from unilateral trade liberalization in individual countries confirm that welfare gains are typically substantial when compared to those from multilateral or regional trade liberalization.

Box 2.3 *(concluded)*

Welfare Gains from Post-Uruguay Round Trade Liberalization[1]
(In billions of U.S. dollars at 1995 exchange rates and prices)

	Types of Products Liberalized				
	Agricultural	Manufacturing	All merchandise	Services	All
GTAP Model					
Industrial countries	122	24	146	. . .	. . .
Developing countries[2]	46	63	108	. . .	. . .
World	168	87	254	. . .	. . .
Michigan Model					
Industrial countries	7	482	489	998	1,487
Developing countries[2]	26	162	188	182	370
World	33	644	677	1,181	1,857

Sources: Anderson and others (2000); and Brown and others (2001).
[1]Figures may not add up because of rounding.
[2]Including newly industrialized countries in Asia, which are classified as advanced countries in the *World Economic Outlook*.

models, especially for the low-income developing countries, which would gain most from progress in this domain (see IMF, 2001a). Similarly, both models imply that, for developing countries as a whole, the welfare gains from worldwide liberalization of trade in manufactures would exceed those from agricultural products, reflecting the increasing importance of manufacturing exports in larger and more advanced developing countries.

For industrial countries, the results of the models differ. Simulations based on the GTAP model suggest that the most important welfare gains from merchandise trade liberalization would result from eliminating restrictions on trade in agricultural products, because trade barriers and subsidies remain high. The welfare gains from eliminating the already low import tariffs on manufactures (except for textiles and apparel) would be small. The Michigan Model, in contrast, suggests that the removal of import tariffs for manufactures could generate important welfare gains in advanced economies because of increased competitive pressures and scale effects. At the same time, the model predicts much smaller welfare gains from liberalizing trade in agricultural goods because of welfare losses experienced by net agricultural exporters, as the redirection of resources to agriculture lowers competition and raises prices in manufacturing and services. However, the simulations likely underestimate the gains from liberalizing trade in agriculture because the simulated policy change does not include the elimination of subsidies to agriculture and because of some specific modeling assumptions.

Removing barriers to trade in services in the new round would increase the global welfare gain considerably in view of the dominant role of the services sectors in most economies and the typically still large trade barriers in these sectors. The results from the Michigan Model simulations, which include services, suggest that these gains would be about twice as large as those from merchandise trade liberalization in the case of industrial countries and would be about equal for developing countries.

Overall, the simulation results suggest important welfare gains for all countries from further post-Uruguay Round multilateral trade liberalization, even though the dynamic gains from trade are not taken into account. The gains differ across countries depending on the type of products included in the liberalization package. Given these differences, the inclusion of a wide range of sectors in the new trade round will be important for its success, because it will allow for the concessions among trade negotiators that will be needed to overcome resistance against further liberalization from vested interests.

Box 2.4. Critics of a New Trade Round

Critics of a new trade round raise two main concerns. The first is that globalization—and particularly trade liberalization—has widened the gap between rich and poor, so that the benefits are not fairly shared. The second is that, with the decline in protection at the border, the focus of trade negotiations has shifted to the realm of domestic policy, limiting the scope for governments to address social problems that arise.

Has Globalization Widened the Gap Between Rich and Poor?

There is a perception that open trade and the process of globalization are widening the gap between the rich and the poor, both within and across countries. Within industrial countries, globalization has been viewed with concern because it is thought to reduce relative wages and employment opportunities of unskilled workers. The substantial body of research on this issue generally finds that import competition *per se* has had a relatively small effect on the relative wages of unskilled workers in industrial countries. Instead, such workers have been mainly affected by technological change and migration (for a review of the evidence, see Burtless and others, 1998). That said, the adverse effects of labor market developments on unskilled workers, from whatever source, underlines the need for continued attention to social safety nets and education.

Turning to the international dimension, the balance of evidence strongly suggests that openness to trade stimulates growth.[1] While for many developing countries the income gap has widened relative to industrial countries, a group of successful integrators is catching up with the rich countries by combining openness with stable macroeconomic conditions, limited government interference, and institutional and infrastructure investment.[2] A recent study by Dollar and Kraay (2001) of post-1980 integrators confirms these findings and provides evidence on within-country equity. The study examines a group of countries that have increased trade as a share of GDP substantially over the past 20 years, including China, Hungary, India, Malaysia, Mexico, the Philippines, and Thailand, and that account for over half of the population of the developing world. These countries introduced reforms in many areas as they opened up to trade, including protection of property rights and universal education, and have seen their economic performance improve substantially, narrowing the gap with rich countries, reducing poverty rates, and, as a group, avoiding any systematic increase in within-country inequality.

These and other studies provide significant evidence that increased openness to trade can assist countries in the context of an overall development strategy to improve economic performance and thus raise living standards. In contrast to the successful integrators, the poor economic performance of many of the countries that have fallen behind reflects a combination of poor policies, high indebtedness, weak institutions, and protection at home and abroad, often exacerbated by civil strife and poor initial circumstances. Helping these countries take advantage of trade for growth and development is a major challenge facing the international community. An essential ingredient of strategies to assist them is the removal of trade barriers, particularly in the areas most important for their development: agriculture, textiles and clothing, labor-intensive manufactures, and labor-based services. A new trade round would provide the opportunity for industrial and developing countries to jointly make progress in these areas. To

[1]See for example, Frankel and Romer (1999); Coe, Helpman, and Hoffmaister (1997); and Bhagwati and Srinivasan (1999). Rodriguez and Rodrik (2000) dispute the empirical evidence on the causal link from trade policies to growth, instead emphasizing institutional development.

[2]See *World Economic Outlook*, Chapter IV, May 1997, which also finds that openness without complementary reforms does not raise growth; and World Bank (1996).

Box 2.4 *(concluded)*

benefit from improved market access, these countries will also need to strengthen their own policies. In addition, much greater assistance (aid for trade) from their development partners will be needed to help them build the capacity to trade and to participate effectively in the WTO.

Are Trade-Rules Encroaching on Domestic Policy Space?

The essence of the WTO (and the earlier General Agreement on Tariffs and Trade) is that it incorporates a rules-based trading system with a dispute settlement mechanism and sanctions for transgressors alongside a mechanism for the negotiation of progressive liberalization of trade. As barriers to trade "at the border" have come down, other obstacles to trade that increasingly touch on domestic policy have become relevant, such as industrial subsidies and intellectual property rights (incorporated in past negotiations) and, more recently, investment and competition policies. While many find this trend necessary for trade rules to remain relevant, others find it contentious, particularly as it touches on wider social issues and impinges on areas traditionally left to domestic decision-making processes.

In this context, some industrial-country-based interest groups argue that there is a need for greater international coordination or convergence of rules, to temper the pressure toward unfettered free trade and avoid a destructive "race to the bottom." In their view, without such protection, companies looking for a competitive advantage will lower costs by moving to low-income countries with limited legal protection for workers and looser environmental standards. As indicated earlier, existing evidence does not support the thesis that opening up to trade generally degrades domestic institutions (see also Bhagwati and Hudec, 1996). In addition, there is an issue of whether trade rules are the ideal vehicle for accomplishing strengthened environmental and labor standards, which are not directly trade issues. A better-targeted approach, avoiding the threat of trade sanctions that would adversely affect workers in the relevant industries, would center on cooperative efforts through specialized means and institutions. Finally, and most important, using the trade system to enforce uniform standards in these areas can impose costs on developing countries that undermine their competitiveness and comparative advantage, reducing aggregate welfare and acting as a form of trade protection.

Indeed, and in contrast, many nongovernmental organizations (NGOs) and developing countries argue that in a number of areas existing trade rules are already too stringent and should be modified to provide greater flexibility to individual countries, consistent with their capabilities and stage of development. They suggest that the rich countries dominate trade negotiations and set the rules in their own interest and point to the costs of raising regulatory and other standards to industrial country norms, as well as the impact of rules on intellectual property rights on such issues as local production of cheap medicines to fight devastating diseases, such as AIDS. While there is merit in many of these specific suggestions for more flexibility, at a fundamental level it should be recognized that a rules-based system tends to protect the weak against the powerful—developing countries that have taken cases to the WTO's dispute settlement process have generally been successful—and that, for example, protection of intellectual property rights spurs innovation.

Given the contentious nature of the debate on trade policies and rules, and the complex web of costs and benefits that arises from them, the most legitimate way of resolving such differences is through a new trade round. Direct negotiations between governments representing their citizens' interests is the best way to revise and develop a trading system that strikes an appropriate balance between the advantages of a rules-based trading system—one that meets the needs of a continuously integrating world economy—and the legitimate desire for freedom to pursue economic policies and social goals and make decisions at the national level.

consultations to prepare for the upcoming ministerial meeting, something that was crucially lacking in the run-up to Seattle. Finally, concrete steps have been taken by some industrial countries to grant duty- and quota-free access to their markets (European Union, New Zealand and Norway), or to grant enhanced concessions under their Generalized System of Preferences.

In addition, progress is being made under the mandated built-in agenda, and discussions in services and agriculture have now been brought to a point where the "true bargaining" (i.e., the exchange of concessions) can take place. However, progress on negotiations in these areas is unlikely until a broader new negotiating agenda is agreed and set in motion.

The Run-Up to the Doha Ministerial Conference

Prospects for a new trade round have improved in view of recent progress although substantial challenges remain to bringing all parties to the table. Advocates of a "comprehensive" round (the European Union and Japan) seem to be ready to show greater flexibility in their approach. In a revised version of its proposed agenda, the EU Commission recognizes that its initial agenda (presented before Seattle) was too ambitious in the new areas, and not ambitious enough on market access and the implementation of existing agreements.[43] The Commission now proposes that agreements on the new issues could be plurilateral, and shows a more positive attitude toward market access, both in agriculture and non-agricultural products.[44] The Commission also stands ready to tackle other issues of concern to developing countries, such as the rules on antidumping, and to lower its expectations in areas such as the environment.

Developing countries, led by the so-called like-minded group, which includes India, Pakistan, Malaysia, and Egypt, have been reluctant to come to the table until they see progress on implementation issues and "tangible" improvements in market access from commitments in the previous round, particularly in areas such as agriculture and textiles and clothing, where they have a comparative advantage. They are most likely to support an agenda oriented toward further liberalization in those sectors, and one that takes into account tariff peaks and tariff escalation in all sectors, as well as subsidies on agricultural products. A key question for most developing countries is how far beyond core market access issues they will be ready to go, in particular regarding the new issues such as investment, competition policies, and the environment.

Another unknown factor is the position of the United States with respect to the negotiations. The government has made frequent statements in support of the launch of a new round in Doha, and has signaled its willingness to consider the extension of talks beyond the mandated built-in agenda. However, it is unclear how broad an agenda the United States would support. The prospects for obtaining trade promotion authority from the U.S. Congress, and the conditions that could be attached, are also uncertain.

Finally, there is a growing consensus that the agenda has to address the needs and concerns of the developing countries and encourage their full participation. This includes not only market access opportunities, but also complementary assistance for capacity building. In this regard, the United States and the European Union have stated in a joint communiqué that they are committed to the launch of a new round that will "equally address the needs and priorities of developing countries, demonstrate that the trading system can respond to the concerns of civil society, and promote sustainable development."[45] They are ready to reinforce and improve the

[43]European Commission, "State of Play and Strategy for the New Round," January 2001, available on the Internet at http://www.europa.eu.int.

[44]Plurilateral agreements, a feature of the GATT system, provide for limited and flexible participation in contrast to the "single undertaking" of the Uruguay Round.

[45]Joint statement issued in Göteborg, June 14, 2001.

provision of technical assistance to build capacity in the poorer countries to implement agreements and to support negotiations, and they will make efforts to secure the early accession of candidate countries to the WTO, especially the poorer countries. They have also pledged to work to improve the dispute settlement system for all countries in the WTO.

Conclusion

A successful, ambitious round of multilateral trade negotiations would result in major benefits for the world economy. A round would contribute to the restoration of market confidence and create new export opportunities; strengthen the multilateral trading system, which was debilitated after Seattle; and stimulate economic reforms by encouraging countries to extend regional liberalization to all WTO members. A new round could thus contribute substantially to global economic growth over the longer term. The potential welfare gains from eliminating remaining trade barriers on merchandise trade are considerable—ranging from $250 billion to $680 billion a year, excluding dynamic effects. About one-third of these gains would accrue to developing countries, more than twice the annual flow of aid to these countries. The gains from the liberalization of services are likely to be even larger given the size of this sector, its importance in overall competitiveness, and still high protection.

A new round should be sufficiently broad in scope to allow for trade-offs across sectors and issues. The goals for market access should be ambitious, aiming for substantial reduction or elimination of trade barriers where remaining protection is highest—agriculture, labor-intensive manufactures, and services. Both industrial and developing countries stand to gain substantially from liberalization in these areas. To facilitate free and nondiscriminatory trade, multilateral trade rules need to be clarified and strengthened, particularly in areas susceptible to capture by protectionist interests (e.g., antidumping and other safeguard measures, health, safety, and environmental standards) and the dispute settlement mechanism further developed. The full participation of all WTO members in the development of the rules-based trading system is essential, and trade agreements should provide for flexibility in implementing commitments, recognizing the capacity constraints and development needs of the poorer countries.

The failure to make tangible progress toward a new round of trade negotiations would reduce confidence in the multilateral trading system and the commitment to further trade liberalization.[46] Lacking a broader context that would allow for concessions, negotiations in agriculture and services under the built-in agenda could languish. While there was no resort to protectionism after the financial crises of the late 1990s and the failure of the Seattle Ministerial Conference, protectionist pressures will be much more difficult to contain if the world economy slows down for a sustained period of time and there is little prospect of advancing on the multilateral trade front. Failure to continue to develop the rules and the dispute settlement procedures, and to thereby give confidence to trading partners and their major constituencies that the multilateral system remains relevant and responsive, could erode support for it. In this environment, increased resort to regional trading arrangements could ultimately have adverse consequences for the world economy. The GATT/WTO was created precisely to prevent the emergence of hostile trading blocks. In the absence of a new round, the primacy of multilateralism over regionalism may be threatened, a development that would be particularly detrimental to the poorest countries, which could be further marginalized.

[46]The first 50 years of the multilateral trading system saw almost continuous multilateral negotiations. The Tokyo Round was completed in 1979 and the Uruguay Round launched in 1986, after a series of Ministerial Conferences in 1982–86 that gradually developed the design for it. The Uruguay Round negotiations were completed in late 1993, almost eight years ago.

References

Agénor, Pierre-Richard, John McDermott, and Eswar Prasad, 2000, "Macroeconomic Fluctuations in Developing Countries: Some Stylized Facts," *The World Bank Economic Review,* Vol. 14 (May), pp. 251–85.

Ahmed, Shaghil, and Prakash N. Loungani, forthcoming, "Business Cycles in Asia," IMF Working Paper (Washington: International Monetary Fund).

Albuquerque, Rui, 2001, "The Composition of International Capital Flows: Risk Sharing Through Foreign Direct Investment" (unpublished; Rochester, New York: University of Rochester).

Anderson, Kym, Joe Francois, Thomas W. Hertel, Bernard Hoekman, and Will Martin, 2000, "Potential Gains from Trade Reform in the New Millennium," paper presented at the Third Annual Conference on Global Economic Analysis, Monash University, Mt. Eliza, Australia, June.

Arora, Vivek, and Martin Cerisola, 2000, "How Does U.S. Monetary Policy Influence Economic Conditions in Emerging Markets?" IMF Working Paper No. 00/148 (Washington: International Monetary Fund).

Artis, Michael J., and Wenda Zhang, 1999, "Further Evidence on the International Business Cycle and the ERM: Is There a European Business Cycle?" *Oxford Economic Papers,* Vol. 51 (January), pp. 120–32.

Avery, Christopher, and Peter Zemsky, 1998, "Multidimensional Uncertainty and Herd Behavior in Financial Markets," *American Economic Review,* Vol. 88 (September), pp. 724–48.

Baxter, Marianne, and Robert G. King, 1999, "Measuring Business Cycles: Approximate Band-Pass Filters for Economic Time Series," *Review of Economics and Statistics,* Vol. 81 (November), pp. 575–93.

Baxter, Marianne, and Michael Kouparitsas, 2000, "What Causes Fluctuations in the Terms of Trade?" NBER Working Paper No. 7462 (Cambridge, Massachusetts: National Bureau of Economic Research).

Bhagwati, Jagdish, 1978, *Foreign Trade Regimes and Economic Development: Anatomy and Consequences of Exchange Control Regimes* (Cambridge, Mass.: Ballinger).

Bhagwati, Jagdish, and Robert Hudec, 1996, *Fair Trade and Harmonization: Prerequisites for Free Trade?* (Cambridge, Mass.: MIT Press).

Bhagwati, Jagdish, and T.N. Srinivasan, 1999, "Outward-Orientation and Development: Are Revisionists Right?" Discussion Paper No. 806 (New Haven: Yale University, Economic Growth Center).

Bikhchandani, Sushil, David Hirshleifer, and Ivo Welch, 1998, "Learning from the Behavior of Others: Conformity, Fads and Informational Cascades," *Journal of Economic Perspectives,* Vol.12 (summer), pp. 151–70.

Brown, Drusilla K., Alan V. Deardorff, and Robert M. Stern, 2001, "CGE Modeling and Analysis of Multilateral and Regional Negotiating Options," Discussion Paper No. 468 (Ann Arbor: University of Michigan, Research Seminar in International Economics).

Bulir, Ales, and Javier Hamann, forthcoming, "How Volatile and Predictable Are Aid Flows, and What Are the Policy Implications?" IMF Working Paper (Washington: International Monetary Fund).

Burtless, Gary, Robert Z. Lawrence, Robert E. Litan, Robert J. Shapiro, 1998, *Globaphobia,* (Washington, D.C.: The Brookings Institution).

Camen, Ulrich, 1987, "Concepts and Measurement of World Business Cycles," (unpublished; Geneva, Switzerland: The Graduate Institute of International Studies).

Canova, Fabio, and Harris Dellas, 1993, "Trade Interdependence and the International Business Cycle," *Journal of International Economics,* Vol. 34 (February), pp. 23–47.

Canova, Fabio, and Jane Marrinan, 1998, "Sources and Propagation of International Output Cycles: Common Shocks or Transmission?" *Journal of International Economics,* Vol. 46 (October), pp. 133–66.

Clark, Todd E., and Kwanho Shin, 1998, "The Sources of Fluctuations Within and Across Countries," Research Working Paper No. 98–04 (Kansas City, Missouri: Federal Reserve Bank of Kansas City).

Coe, David T., Elhanan Helpman, and Alexander W. Hoffmaister, 1997, "North-South R&D Spillovers," *Economic Journal,* Vol. 107 (January), pp. 134–49.

Dahlquist, Magnus, Peter Hördahl, and Peter Sellin, 2000, "Measuring International Volatility Spillovers," in *International Financial Markets and the Implications for Monetary and Financial Stability,* BIS Conference Papers Vol. 8 (Basel: Bank for International Settlements).

Deaton, Angus, 1999, "Commodity Prices and Growth in Africa," *Journal of Economic Perspectives,* Vol. 13 (summer), pp. 23–40.

———, and Robert Miller, 1995, "International Commodity Prices, Macroeconomic Performance, and Politics in Sub-Saharan Africa," *Studies in International Finance*, No. 79 (Princeton: Princeton University, Department of Economics).

De Santis, Giorgio, and Bruno Gerard, 1997, "International Asset Pricing and Portfolio Diversification with Time-Varying Risk," *Journal of Finance*, Vol. 52 (December), pp. 1881–1912.

Dollar, David, and Aart Kraay, 2001, "Trade, Growth, and Poverty," Policy Research Paper No. 2587 (Washington: World Bank).

Dumas, Bernard, Campbell R. Harvey, and Pierre Ruiz, 2000, "Are Common Swings in International Stock Returns Justified by Subsequent Changes in National Outputs?" INSEAD Working Paper No. 2000/02 FIN (Fontainebleau, France: INSEAD).

Edwards, Sebastian, 1998, "Openness, Productivity and Growth: What Do we Really Know?" *Economic Journal*, Vol. 108 (March), pp. 383–98.

Feenstra, Robert C., 1995, "Estimating the Effects of Trade Policy," in *Handbooks in International Economics*, Vol. 3, ed. by Gene M. Grossman, and Kenneth Rogoff, (Amsterdam: Elsevier, North-Holland).

Forni, Mario, Marc Hallin, Marco Lippi, and Lucrezia Reichlin, 2000, "The Generalized Dynamic Factor Model: Identification and Estimation," *The Review of Economics and Statistics,* Vol. 82 (November), pp. 540–54.

Frankel, Jeffrey A., and David Romer, 1999, "Does Trade Cause Growth?" *American Economic Review,* Vol. 89 (June), pp. 379–99.

Frankel, Jeffrey A., and Andrew K. Rose, 1998, "The Endogeneity of the Optimum Currency Area Criteria," *Economic Journal*, Vol. 108 (July), pp. 1009–25.

Froot, Kenneth, Paul O'Connell, and Mark Seasholes, 2001, "The Portfolio Flows of International Investors," *Journal of Financial Economics,* Vol. 59 (February), pp. 151–93.

Gerlach, H. M. Stefan, 1988, "World Business Cycles under Fixed and Flexible Exchange Rates," *Journal of Money, Credit, and Banking,* Vol. 20 (November), pp. 621–32.

Gourinchas, Pierre-Olivier, Rodrigo Valdés, and Oscar Landerretche, 2001, "Lending Booms: Latin America and the World," NBER Working Paper No. 8249 (Cambridge, Mass.: National Bureau of Economic Research).

Gregory, Allan W., and Allen C. Head, 1999, "Common and Country-Specific Fluctuations in Productivity, Investment, and the Current Account," *Journal of Monetary Economics,* Vol. 44 (December), pp. 423–51.

———, and Jacques Raynauld, 1997, "Measuring World Business Cycles," *International Economic Review,* Vol. 38 (August), pp. 677–701.

Haberler, Gottfried, 1958, *Prosperity and Depression, A Theoretical Analysis of Cyclical Movements* (Cambridge, Mass.: Harvard University Press, 4th ed.).

Head, Allen, 1995, "Country Size, Aggregate Fluctuations, and International Risk Sharing," *Canadian Journal of Economics,* Vol. 28 (November), pp. 1096–1119.

Hertel, Thomas W., ed., 1997, *Global Trade Analysis: Modeling and Applications,* (Cambridge, U.K. and New York: Cambridge University Press).

Hoffmaister, Alexander, Jorge Roldós, and Peter Wickham, 1998, "Macroeconomic Fluctuations in Sub-Saharan Africa," *IMF Staff Papers,* International Monetary Fund, Vol. 45 (March), pp. 132–60.

Imbs, Jean, 1999, "Co-Fluctuations," CEPR Discussion Paper No. 2267 (London: Centre for Economic Policy Research).

IMF, 2000, *Results of the 1997 Coordinated Portfolio Investment Survey* (Washington: International Monetary Fund Committee on Balance of Payments Statistics).

———, 2001a, "Market Access for Developing Countries' Exports," (Washington: International Monetary Fund). Available on the Internet at http://www.imf.org/external/np/madc/eng/042701.htm.

———, 2001b, *International Capital Markets: Developments, Prospects, and Key Policy Issues*, World Economic and Financial Surveys (Washington: International Monetary Fund).

———, 2001c, *World Economic Outlook,* May 2001, *Fiscal Policy and Macroeconomic Stability,* World Economic and Financial Surveys (Washington: International Monetary Fund).

Kirmani, Naheed, Nur Calika, Richard Harmsen, Michael Leidy, Arvind Subramannin, and Peter Uimonen, 1994, *"International Trade Policies: The Uruguay Round and Beyond,"* Vol. 2, World Economic and Financial Surveys (Washington: International Monetary Fund).

Kontolemis, Zenon G., and Hossein Samiei, 2000, "The U.K. Business Cycle, Monetary Policy and EMU Entry," IMF Working Paper No. 00/210 (Washington: International Monetary Fund).

Kose, Ayhan, forthcoming, "Explaining Business Cycles in Small Open Economies: How Much Do World Prices Matter?" *Journal of International Economics*.

———, and Raymond Riezman, 2001, "Trade Shocks and Macroeconomic Fluctuations in Africa," *Journal of Development Economics,* Vol. 65 (June), pp. 55–88.

Kose, Ayhan, and Kei-Mu Yi, 2001, "International Trade and Business Cycles: Is Vertical Specialization the Missing Link?" *American Economic Review*, Vol. 91 (May), pp. 371–75.

Kose, Ayhan, Christopher Otrok, and Charles Whiteman, 2000, "International Business Cycles: World, Region, and Country-Specific Factors," (unpublished; Iowa City: University of Iowa, Department of Economics).

Kouparitsas, Michael, 1996, "North-South Business Cycle," Working Paper 96–9 (Chicago: Federal Reserve Bank of Chicago).

Kumar, Manmohan S., and Avinash Persaud, forthcoming, "Investor Risk Appetite and Contagion Effects," IMF Working Paper (Washington: International Monetary Fund).

Kumar, Manmohan S., and Ken Kashiwase, forthcoming, "Spillovers in Business Confidence in Major Industrial Economies," IMF Working Paper (Washington: International Monetary Fund).

Kraay, Aart, and Jaume Ventura, 2001, "Comparative Advantage and the Cross-Section of Business Cycles," NBER Working Paper No. 8104 (Cambridge, Mass.: National Bureau of Economic Research).

Lewis, Karen K., 1999, "Trying to Explain Home Bias in Equities and Consumption," *Journal of Economic Literature,* Vol. 37 (June), pp. 571–608.

Loayza, Norman, Humberto Lopez, and Angel Ubide, 1999, "Sectorial Macroeconomic Interdependencies—Evidence for Latin America, East Asia and Europe," IMF Working Paper No. 99/11 (Washington: International Monetary Fund).

Longin, François, and Bruno Solnik, 1995, "Is the Correlation in International Equity Returns Constant: 1960–1990?" *Journal of International Money and Finance*, Vol. 14 (February), pp. 3–26.

Lumsdaine, Robin L., and Eswar S. Prasad, 1999, "Identifying the Common Component in International Economic Fluctuations: A New Approach," IMF Working Paper No. 99/154 (Washington: International Monetary Fund).

McDermott, C. John, and Alasdair Scott, 2000, "Concordance in Business Cycles," IMF Working Paper No. 00/37 (Washington: International Monetary Fund).

Mendoza, Enrique, 1995, "The Terms of Trade, the Real Exchange Rate, and Economic Fluctuations," *International Economic Review,* Vol. 36 (February), pp. 101–137.

———, 2001, "Credit, Prices, and Crashes: Business Cycles with a Sudden Stop," NBER Working Paper No. 8338 (Cambridge, Mass.: National Bureau of Economic Research).

Montiel, Peter, and Carmen Reinhart, 2001, "The Dynamics of Capital Movements to Emerging Economies During the 1990s," in *Short-Term Capital Flows and Economic Crises,* ed. by Stephany Griffith-Jones, Manuel Montes, and Anwar Nasution (New York: Oxford University Press).

Mussa, Michael, 2000, "Factors Driving Global Economic Integration," paper presented at a symposium sponsored by The Federal Reserve Bank of Kansas City on "Global Opportunities and Challenges," Jackson Hole, Wyoming, August 25, 2000.

Obstfeld, Maurice, and Kenneth Rogoff, 2000, "The Six Major Puzzles in International Macroeconomics: Is There a Common Cause?" NBER Working Paper No. 7777 (Cambridge, Mass.: National Bureau of Economic Research).

Pallage, Stéphane, and Michael Robe, forthcoming, "Foreign Aid and the Business Cycle," *Review of International Economics*.

Poterba, James M., 2000, "Stock Market Wealth and Consumption," *Journal of Economic Perspectives,* Vol. 14 (spring), pp. 99–118.

Razin, Assaf, and Andrew Rose, 1994, "Business-Cycle Volatility and Openness: An Exploratory Cross-Sectional Analysis," in *Capital Mobility: The Impact on Consumption, Investment and Growth*, ed. by Leonardo Leiderman and Assaf Razin (New York: Cambridge University Press).

Rodriguez, Francisco, and Dani Rodrik, 2000, "Trade Policy and Economic Growth: A Skeptic's Guide to Cross-National Evidence," in *NBER Macroeconomics Annual 2000*, ed. by Ben Bernanke and Kenneth Rogoff (Cambridge, Mass.: MIT Press).

Rodrik, Dani, 1999, *The New Global Economy and Developing Countries: Making Openness Work,* (Washington: Overseas Development Council).

Romer, Paul, 1994, "New Goods, Old Theory, and the Welfare Costs of Trade Restrictions," *Journal of Development Economics*, Vol. 43, pp. 5–38

Sachs, Jeffrey, and Andrew Warner, 1995, "Economic Reform and the Process of Global Integration," *Brookings Papers on Economic Activity: 1*, pp. 1–118.

Shiller, Robert J., 1998, "Human Behavior and the Efficiency of the Financial System," NBER Working No. Paper 6375 (Cambridge, Mass.: National Bureau of Economic Research).

Stulz, Rene, 1995, "International Portfolio Choice and Asset Pricing," in *Finance*, ed. by Robert A. Jarrow, Vojislav Maksimovic, and William T. Ziemba (Amsterdam: North Holland).

———, 1999, "International Portfolio Flows and Securities Markets," in *International Capital Flows*, ed. by Martin Feldstein (Chicago: University of Chicago Press).

Swoboda, Alexander K., 1983, "Exchange Rate Regimes and European-U.S. Policy Interdependence," *Staff Papers,* International Monetary Fund, Vol. 30 (March), pp. 75–112.

Tesar, Linda L., and Ingrid M. Werner, 1995, "Home Bias and High Turnover," *Journal of International Money and Finance,* Vol. 14 (August), pp. 467–92.

Vamvakidis, Athanasios, 1999, "Regional Trade Agreements or Broad Liberalization: Which Path Leads to Faster Growth?" *IMF Staff Papers,* Vol. 46 (March), pp. 42–68.

World Bank, 1996, *Global Economic Prospects and the Developing Countries* (Washington: World Bank).

———, 2000, *Trade Blocs* (Washington: World Bank).

Zarazaga, Carlos E. J. M., 1999, "Measuring the Benefits of Unilateral Trade Liberalization Part 1: Static Models," Economic and Financial Review, Third Quarter (Dallas: Federal Reserve Bank of Dallas).

———, 2000, "Measuring the Benefits of Unilateral Trade Liberalization Part 2: Dynamic Models," Economic and Financial Review, First Quarter (Dallas: Federal Reserve Bank of Dallas).