CHAPTER II ESSAYS ON TRADE AND FINANCE

This chapter contains three essays on current policy issues associated with trade and finance: two on vulnerabilities to the world economic outlook (global external imbalances and corporate financial structures in emerging markets) and one on industrial country barriers to agricultural trade. The topics covered are of particular interest in light of recent events, including fluctuations in major exchange rates, renewed concern about emerging markets, and continuing multilateral negotiations on lowering trade barriers under the Doha round, including the granting of "fast track" negotiating authority to the U.S. president.

The first essay examines the concerns raised by large external imbalances between the main industrialized countries. Rather than focusing on the situation in the United States, as has generally been done in the existing literature, it considers these developments from a multilateral point of view (including the role of emerging markets in east Asia since the 1997 crisis). This perspective provides a series of additional insights, including the importance of looking at *relative* saving and investment rates across countries rather than *absolute* values; the impact of currency movements on global wealth holdings; and the constraints on the rotation of demand from the deficit countries to surplus countries caused by structural impediments in continental Europe and east Asia. Using a range of approaches, the essay concludes that the current imbalances are not viable over the medium term. It then analyzes the potential for the adjustment to occur in a rapid and potentially disruptive manner, and policies that could help mitigate this risk.

The second essay reviews the global consequences of extremely high levels of agricultural sector protection in industrialized countries. Industrial countries provide protection to their farming sectors amounting to some 30 percent of gross farm income, which results in large distortions in global agricultural markets. Using a variety of approaches, the essay documents the benefits that could be achieved from reducing agricultural support. It finds that the largest gains go to the countries that liberalize. Thus, while developing countries would substantially benefit from the removal of industrial country agricultural protection—and industrial countries should take the lead in moving forward with this, not least because they would also gain in the longer run—developing countries would benefit even more from removing their own restrictions. The essay also notes, however, that some countries lose from liberalization of specific commodities.

The final essay examines differences in corporate structures and financial vulnerabilities across emerging market countries. It evaluates how institutions, macroeconomic developments, and firm- and sector-specific factors have affected the evolution of corporate leverage, liquidity, and profitability indicators across these countries since the early 1990s. In particular, the essay assesses the relative importance of these factors in explaining regional and country differences in vulnerabilities, and the resulting policy implications. One important finding is that corporate vulnerability tends to peak at moderate levels of financial development, underscoring the need for particular efforts to strengthen financial system monitoring and supervision at that stage.

How Worrisome Are External Imbalances?[1]

External imbalances across the main industrial country regions widened steadily during the

[1]The main authors of this essay are Tamim Bayoumi and Marco Terrones; Augusto Clavijo provided research assistance.

1990s. Current account surpluses in many countries and regions, including Japan, the euro area, and (in the late 1990s) emerging markets in east Asia, were counterbalanced by deficits elsewhere, most notably in the United States. Indeed, in the United States and Japan, the ratio of the current account balance to trade flows—perhaps the best measure of the degree of underlying imbalance—have risen to levels almost never seen in industrial countries in the postwar period. As a result, Japan is exporting 1½ percent of world saving and the United States is absorbing 6 percent.

In an extension of the existing literature, this essay analyzes the growing imbalances from a multilateral perspective, rather than focusing on the situation in the United States.[2] This change in focus generates a number of new analytic insights, including the importance of looking at *relative* saving and investment rates across countries rather than *absolute* values, the impact of currency movements on global wealth holdings, the constraints on the rotation of demand from the deficit countries to surplus countries caused by structural impediments in continental Europe and east Asia, and the consequences of external imbalances across the main deficit and surplus countries for the rest of the world.

One of the major concerns associated with the global imbalances is the possibility of an abrupt and disruptive adjustment of major exchange rates. At the outset, it should be emphasized that exchange rates are highly volatile and unpredictable, and economists have had little success in forecasting exchange rate movements over the short term (Meese and Rogoff, 1983). Over the medium term, however, real exchange rates do tend to revert back toward fundamental values (Taylor, 2001, and Engel, 2002). While it is difficult to know when adjustment will take place, it is essential to anticipate the potential risks and costs that may be associated with adjustment, and whether these can be mitigated by policy actions. In this essay, we focus on the following key analytic issues.

- How concerned should policymakers be about external current account deficits, especially if they result from private sector decisions?
- What are the causes of the imbalances that have developed over the past decade?
- Are the present imbalances viable in the medium term and, if not, what can we say about how they will adjust?
- Can macroeconomic policies, both in the deficit and surplus countries, reduce the risk of a disruptive exchange rate and current account adjustment and, if so, how?

Why Are Imbalances an Issue?

Why should net flows of goods and assets between countries be a concern? Some have suggested that current account deficits are becoming an outmoded concept in an increasingly integrated world, where current and capital flows are driven primarily by private, rather than public, decisions (the so-called Lawson doctrine, first put forward by U.K. Chancellor Lawson in the late 1980s). While there is clearly an element of truth in such arguments, there are a number of reasons to believe that current accounts still matter.

- *First, relatively small external adjustments across countries imply significant changes in the tradable goods sector and in real exchange rates.* For all the recent emphasis on globalization, levels of integration between countries remain moderate, especially for the major currency areas.[3] With euro area, Japanese, and U.S. exports making up only 10–20 percentage points of their respective GDPs, an adjustment of a few percentage points of GDP in current accounts requires large changes in the tradable goods sectors, and consequently significant movements in real exchange rates.

[2]Existing work includes Mann (1999, 2002), Cooper (2001), Hervey and Merkel (2000), McKinnon (2001), Obstfeld and Rogoff (2000), and Ventura (2001).

[3]Obstfeld and Rogoff (2001). For example, after controlling for other relevant factors, the typical Canadian province trades some twenty times as much with other Canadian provinces than with U.S. states just across the border (McCallum, 1995; see also Anderson and van Wincoop, 2001).

- *Second, rapid movements in exchange rates can lead to disruptive changes in the macroeconomy.* In the 1970s and 1980s this was seen primarily in prices, with depreciation putting upward pressure on prices and wages, and often requiring a tightening of monetary policy. Since that time, pass-through of exchange rates to prices has fallen significantly in most countries as monetary policy has become more credible (Taylor, 2000; Choudhri and Hakura, 2001; and Gagnon and Ihrig, 2001). As a result, the impact of exchange rate changes is felt increasingly through changes in corporate profits, investment, and asset prices.
- *Third, while the increase in the imbalances in recent years has reflected private sector decisions, this does not exclude excesses.* To err is human, and this is as true of private sector investors as anyone else. Indeed, the financial excesses of recent years associated with the information technology (IT) revolution have much in common with those of earlier technological revolutions, when investors overestimated the profits associated with accelerations in productivity growth, leading to costly misallocations of resources (White, 1990, and Chapter III of the October 2001 *World Economic Outlook*).[4]
- *Finally, instability in the lead country can have an adverse impact on the international financial system.* The international financial system has generally been at its most stable when the external position of the lead country is strong, such as Britain during the classical gold standard, and less stable when external position of the lead country is under more strain (Skidelsky, 2001, documents how financial positions affected the negotiating positions of the United States and the United Kingdom at the Bretton Woods conference). Recently, dollar strength has contributed to protectionist pressures in the United States and the imposition of tariffs on steel, increasing trade tensions at a time when multilateral negotiations on reducing trade barriers are getting under way.[5]

Evolution of Global Imbalances

External imbalances across major trading regions rose steadily during the 1990s, driven by movements in trade balances. There is now a gap of some 2½ percent of global GDP between the current account surpluses of continental Europe and east Asia (dominated by the euro area and Japan, respectively) and the deficit countries, dominated by the United States (Figure 2.1).[6] While such groupings inevitably obscure some country detail (for example, Canada is included in the deficit country group although its long-standing current account deficit turned into a surplus in 1999 as the Canadian dollar depreciated against its United States counterpart), they are a useful vehicle for discussing broad global trends. It is noticeable that a similar pattern of imbalances involving the same country groupings occurred in the first half of the 1980s, before dwindling in the second half of the decade as the dollar (in particular) reversed its earlier appreciation. Movements in the external positions of the deficit countries

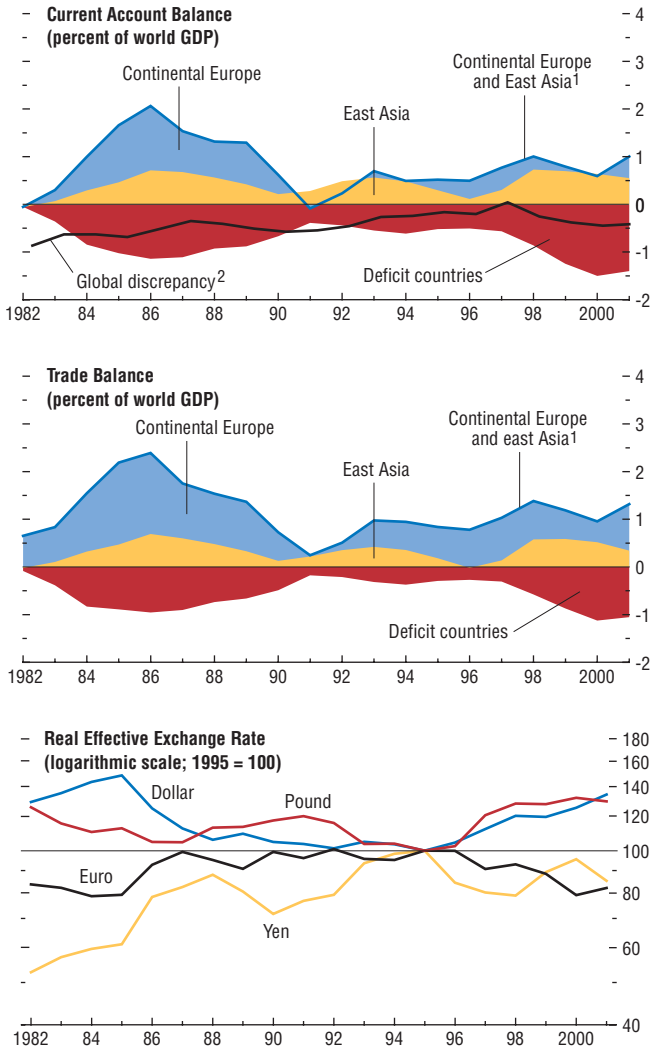
[4]From a historical perspective, it is also noticeable that the imbalances are between regions with relatively similar economic structures and levels of development, and hence, one would expect, similar investment opportunities. By contrast, the large and highly persistent imbalances seen in the late nineteenth century (with which the current situation is sometimes compared) reflected the export of capital from the European industrial core to areas of new European settlement, where the introduction of modern techniques created higher rates of return. Also, in the earlier period, current account surpluses (deficits) were more sustainable as countries tended to run trade balances of the opposite sign.

[5]The link between deficits and protectionist pressures is extensively documented in the trade literature, as deficits are perceived to reflect unfair trading practices by other countries (Takacs, 1981, and Dornbusch and Frankel, 1987). See also McKinnon (2001).

[6]The continental European countries comprise the euro area plus Denmark, Norway, Sweden, and Switzerland; east Asia comprises Japan and emerging markets in east Asia, made up of Hong Kong SAR, Indonesia, Korea, Malaysia, the Philippines, Singapore, Thailand, and Taiwan Province of China, but not China itself as its capital markets remain relatively closed; and the deficit countries consist of Australia, Canada, New Zealand, the United Kingdom, and the United States.

Figure 2.1. Selected External Sector Variables

As in the early 1980s, rising current account imbalances in the 1990s reflect movements in trade balances and real exchange rates.



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

[1]Continental Europe and east Asia is represented by the solid blue line.

[2]Reflects errors, omissions and asymmetries in balance of payments statistics on current account, as well as the exclusion of data for international organizations and a limited number of countries.

have been largely offset by movements in the surpluses of continental Europe over the 1980s and 1990s and, since the 1997 financial crisis, emerging markets in east Asia, while Japan's surplus has been rather more constant. That said, a significant part of the deterioration in the external position of the deficit countries since 1997 has no counterpart in external statistics elsewhere, but is reflected in an expansion in the global current account discrepancy (Box 2.1 discusses this and other statistical issues).

Despite these fluctuations across regions, the current account deficit to GDP ratio for these three major areas as a group has changed little over time, with both saving and investment ratios to GDP remaining relatively stable (upper panel, Figure 2.2). As a result, variations in external positions within this group have not had a major impact on borrowing by the rest of the world, in part because many developing countries' ability to borrow money on global capital markets is already constrained. The major exception is Latin America, where countries are open to capital flows but have underlying financing needs that are generally close to their access limits, making them susceptible to changes in external financing conditions, in particular U.S. interest rates (Edwards, 1996, and Calvo, Leiderman, and Reinhart, 1993).

Real demand has consistently grown faster than real GDP as productivity accelerated in the deficit countries in the 1990s (most notably in the United States), while the opposite pattern is generally seen elsewhere (Table 2.1). The expansion in demand in the deficit countries partly reflected excessively buoyant expectations of future profits in the IT sector (Ventura, 2001; although Hervey and Merkel, 2000, take a different view). This affected the deficit countries most because IT was a generally a larger part of their economies and demand was more responsive to movements in wealth. Buoyant profit expectations in the deficit countries drew large capital inflows, supporting the 40 percent appreciation of the dollar and 20 percent depreciation of the euro between 1995 and early this year that facilitated the changes in real net exports associ-

Table 2.1. Growth of Output, Domestic and External Demand, 1982–2001
(Percent a year)

	1982–86	1987–91	1992–96	1997–2001
Deficit countries				
Domestic demand	3.8	2.0	3.1	4.1
Real GDP	3.2	2.4	3.0	3.5
External demand	0.6	–0.4	—	0.6
Continental Europe				
Domestic demand	1.7	3.4	0.9	2.6
Real GDP	1.8	3.3	1.3	2.6
External demand	–0.1	0.2	–0.4	—
East Asia[1]				
Domestic demand	3.6	6.7	3.5	0.4
Real GDP	3.8	6.1	3.9	1.4
External demand	–0.2	0.5	–0.4	–1.0

[1]Excluding Indonesia and Malaysia.

ated with divergences between the growth of output and demand.[7] In contrast, cyclical effects have generally been small, reflecting the synchronicity of the global business cycle, although they played some role in the early 1990s when recessions were atypically asynchronous across the main industrial country regions.

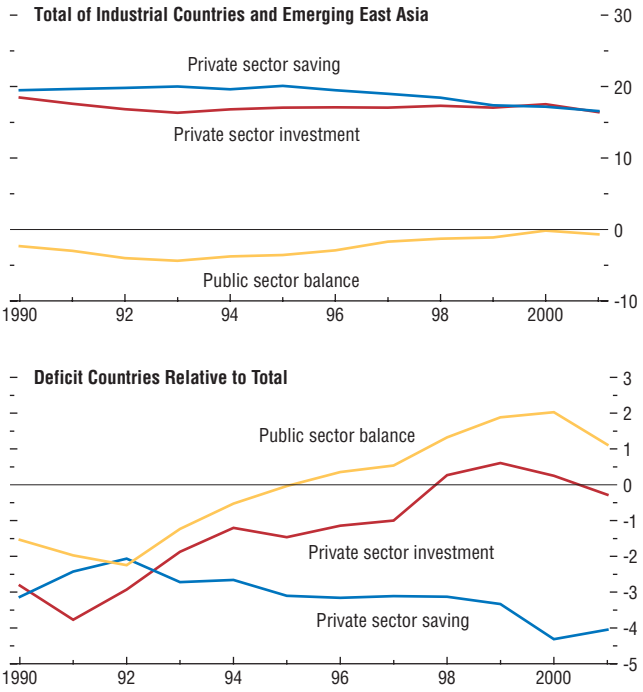
Were the higher current account deficits of the deficit countries in the 1990s financing private investment, private consumption, or the fiscal position?[8] The evolution of current accounts across regions depends upon the *relative* rather than *absolute* movements in saving and investment rates—for example, if saving rates in all regions rise by the same amount, this provides more resources for investment everywhere, but has no direct impact on current account positions. As can be seen from the lower panel of Figure 2.2, initially the higher current account deficit was driven by an increase in private investment relative to the other regions (mainly reflecting spending on IT goods associated with buoyant expectations about the new technology). Since 1999, however, the current account

[7]A similar pattern with regard to domestic demand and the exchange rate occurred in the early 1980s, driven by fiscal expansion in the deficit countries that raised interest rates and drew in foreign capital.

[8]See also Mann (1999, 2002) on the evolution of U.S. saving and investment rates.

Figure 2.2. Private Sector Saving and Investment, and Public Sector Balance
(Percent of GDP)

Investment and saving positions have been relatively stable for the regions as a whole, despite significant relative movements between the deficit countries and the rest.



Sources: OECD, *Annual National Accounts;* IMF, *International Financial Statistics;* and IMF staff calculations.

Box 2.1. The Global Current Account Discrepancy and Other Statistical Problems

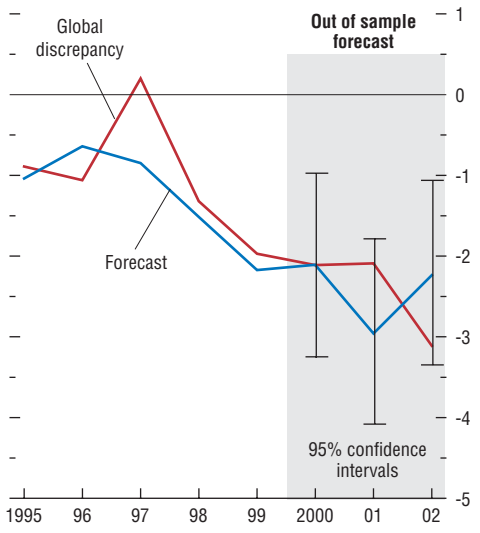
In principle, since one country's export is another country's import, current account balances across the world should sum to zero. In practice, however, this is not the case. Indeed, since 1997, the world as a whole has apparently been running an increasing current account deficit—the so-called global current account discrepancy—which by 2001 is estimated to have amounted to 2 percent of global imports (see the figure).[1] Clearly, this significantly complicates the analysis of global imbalances. For instance, it raises the question how much of the U.S. current account deficit is simply the result of measurement errors. In addition, even if the U.S. current account deficit is correctly measured, the discrepancy means that a significant portion of the recent increase has no counterpart in the rest of the world.

While a discrepancy is difficult to analyze by its very nature, recent work by Marquez and Workman (2001) suggests that the global current account discrepancy may in part reflect the following economic factors:

- *transportation lags*, if exports are recorded in one year, while the corresponding imports are not recorded until the next;
- *underreporting of investment income*, partly related to tax evasion and the growth of offshore centers;
- *asymmetric valuation*, where the export and import of the same good are valued at different prices; and
- *data quality issues*, especially for transportation services and workers' remittances.

To test these hypotheses, Marquez and Workman developed and estimated a small model of the discrepancy, which fit developments through 1998 reasonably well. Marquez recently provided updated projections from this model for the *World Economic Outlook*, and found that the model continues to track the overall behavior of the discrepancy up to 2002 reasonably well.

Outcome and Forecasts of Global Current Account Discrepancy
(Percent of world imports)



Source: Marquez and Workman (2000).

During the late 1990s, the rise in the discrepancy appears mainly to have been attributable to data quality issues. More recently, this effect has leveled off, and the rise in the absolute value of the discrepancy in 2001 largely reflects underreporting of investment income.

To the extent that the model tracks the discrepancy reasonably well, it implies that the rise in the absolute value of the discrepancy over the late 1990s reflects a continuation of existing trends, rather than a new phenomenon. This somewhat reduces the level of concern about the measurement of the U.S. current account deficit and its counterpart in the rest of the world. That said, these results have to be treated with caution, not least because the model performs rather less well when trying to explain individual components of the discrepancy. In addition, estimation over more recent data provides some evidence of parameter instability, hardly surprising in the modeling of a discrep-

Note: The main author of this box is Tamim Bayoumi.

[1]The September 2002 *Global Financial Stability Report* has a full description of recent developments in the current account discrepancy.

ancy whose size and composition presumably changes over time.

The global current account discrepancy is far from the only statistical problem facing balance of payments analysts. Measurement of international investment positions, which have grown rapidly in recent years, is also a serious problem.[2] The quality of the official data on investment positions put together using surveys and capital flows is improving, but remain imperfect.[3] Many industrial countries have only recently begun to compile data and methodologies differ—in particular, the foreign direct investment position is variously measured at book value, historic cost, or market prices. The data are also subject to large revisions, particularly when benchmark surveys are conducted.

In the United States, a country whose data has been among the more carefully compiled, the net liability position was recently revised down several percentage points of GDP as a result of the end-2000 benchmark survey, with a knock-on effect on net income flows that reduced the current account deficit by about ¼ percent of GDP (see Warnock and Cleaver, 2002, for a fuller discussion of the underlying issues). While this is significant, it does not fundamentally change the qualitative assessment of current trends. Despite all these statistical problems, it remains clear from a number of angles that there are large external imbalances between the deficit countries on the one hand and surplus countries on the other, and that these are resulting in diverging net asset positions.

[2]In addition, data on net investment positions across a much wider range of countries using only accumulated capital flows and a consistent methodology are available in the academic literature (Lane and Milesi-Ferretti, 2001).

[3]The quality of the international investment data is likely to improve further in the near future. Some steps have already been taken, in part due to a Coordinated Portfolio Investment Survey (CPIS) introduced by the IMF. Twenty-nine countries participated in the first CPIS, compiling data on the stock of cross-border assets of equity and long-term debt securities at year-end 1997. A second CPIS involving 65 economies is currently being conducted to obtain end-2001 data, and from then on surveys will be annual, improving the frequency of benchmarks and hence the accuracy of the data.

deficit has mainly reflected lower relative private saving rates (accompanied by a partly cyclical fall in public savings and private investment rates), most likely reflecting the greater demand response to the increase in wealth in the 1990s in the deficit countries, which tend to have direct finance–based financial systems (Bertaut, 2002, and Chapter II of the May 2001 *World Economic Outlook*).[9]

In short, the expansion in the imbalances in the deficit countries in the 1990s reflected faster growth combined with financial excesses involving buoyant expectations about future economic prospects associated with the IT revolution. These developments supported real demand and induced autonomous capital inflows that allowed the real exchange rate to appreciate. A number of factors suggest that financial excesses played a significant role in the large increase in the growth of real demand relative to output in the deficit countries. First, although traditional trade models imply that faster growth creates a deficit, this result is not generally seen in the data. Rather, the responsiveness of real exports to foreign activity increases (Krugman, 1989). Indeed, the authors' analysis of the impact of

[9]While slow-moving demographic trends across industry country groups could be responsible for the gradual movements in relative private saving through much of the 1990s, this has not been a significant driver of imbalances over most of the period. In addition, the most important demographic shifts are occurring between industrial and developing countries, rather than within industrial country groups. See Chapter III of the May 2001 *World Economic Outlook*.

medium-term trends in output growth on the current account and real exchange rate across 19 industrial countries finds that a medium-term acceleration in growth has a limited impact on the current account and real exchange rate. Second, the same staff study found some link between the size of the IT sector in the late 1990s and real exchange rates and current account deficits across the same 19 countries. Finally, as discussed further below, simulations using MULTIMOD, the IMF's macroeconomic model, find that, in addition to an acceleration in productivity growth in deficit countries, a shift in investor preferences toward the assets of deficit countries is needed to mimic the experience of the late 1990s.

The dynamism of demand in the deficit countries in the 1990s has provided important support for global activity, most notably in emerging markets in east Asia since 1997, but—as discussed below—current gaps between the growth in real domestic demand and real output cannot be sustained indefinitely. The underlying issue is whether the eventual rotation in real demand growth away from these countries to continental Europe and east Asia will occur in a smooth manner or not. In the late 1980s, the deceleration in real domestic demand in the deficit countries was cushioned by buoyant demand in the euro area and Japan (largely reflecting German unification and an asset price bubble, respectively). While this was stabilizing at the time, it proved unsustainable, and led to recessions in the euro area and Japan in 1992–93 as well as problems that linger to this day, including in the Japanese banking system and German construction industry. Given existing structural impediments in the euro area and east Asia, it appears unlikely that these regions are currently in a position to significantly offset a rapid deceleration in demand elsewhere (such a pattern certainly did not occur over the 2001 global slowdown). Indeed, an appreciation in their currencies could even reduce the growth of output and demand, particularly in Japan with its limited room for policy maneuver. The implication is that, in current circumstances, a rapid reduction in external imbalances would most likely lead to a slowing of global output, underlining the urgency of pursuing structural reforms in continental Europe and east Asia, most notably in Japan.

Large external surpluses and deficits have also led to increasing divergences in net foreign asset positions across countries, with Japan building up net assets and the United States, net liabilities (Figure 2.3).[10] Indeed, the foreign asset position in both countries is approaching or beyond their own historical records. In the late 1990s, the U.S. deficit was financed increasingly by equity flows from the euro area (comprising both foreign direct investment and portfolio equity flows).[11] This was associated with buoyant expectations about future profits, particularly in the United States, and a general shift in investor preferences toward common stocks. Given the dominance of U.S. equity markets in global capitalization (a dominance not seen in bond markets), rising global equity prices led to significant autonomous inflows into the United States, an appreciation of the dollar, and a depreciation of the euro.[12] By contrast, the shift in investor preferences away from common stocks in 2001 and 2002 has been associated with falls in global equity prices and, more recently, an appreciation of the euro and depreciation of the dollar.

Finally, currency movements associated with reducing imbalances would shift wealth from surplus to deficit regions, with consequences for demand.[13] The large increase in gross foreign

[10]Other factors, including rising equity prices on the 1990s, help explain why on occasion movements in net foreign asset ratios do not correspond to those of current account ratios.

[11]The September 2002 *Global Financial Stability Report* discusses financing issues in greater depth. See also Cooper (2001) and Chapter II of the October 2001 *World Economic Outlook*.

[12]Portfolio diversification in the euro area prompted by the creation of the single currency probably also played a role.

[13]See also Mann (2002), who notes that because U.S. liabilities are denominated in dollars the U.S. economy is better protected against dollar depreciations than other countries.

assets and liabilities across countries in recent years has made national wealth holdings increasingly dependent on exchange rates (Figure 2.4). While the analysis is complicated by data limitations, a broad sense of the magnitudes involved can be obtained from data on the impact of exchange rate changes in U.S. foreign assets and liabilities (similar data are not available for other major countries). The 25 percent appreciation in the nominal effective value of the dollar between end-1995 and end-2001 led to a cumulative reduction of 12 percent in the value of assets held by U.S. citizens abroad. Based on end-2001 holdings, a reversal of the appreciation of the dollar since end-1995 could lead to an increase in the U.S. net asset position of some 7 percent of U.S. GDP. The potential loss to holders of U.S. assets would be closer to 10 percent of U.S. GDP because of the buildup of net liabilities, of which about 1½ percent of GDP would fall on central banks' reserve holdings, with the remainder distributed widely (including to financial firms and others that have provided hedging services). Additional wealth reallocations would also come from movements in the currencies of other deficit countries against the surplus countries.

Are the Imbalances Viable and How Might They Adjust?

Current account forecasts in this *World Economic Outlook*, which are based on the assumption that real exchange rates remain unchanged, imply that net foreign asset positions as a ratio to GDP will continue to diverge. In particular, in the absence of revaluations of asset prices, the current forecast implies that Japanese net assets as a ratio to GDP would rise by about one-third (to about 40 percent of GDP) between now and 2007, and U.S. net liabilities would double (again to about 40 percent of GDP). In both cases, this would be unprecedented by the countries' own historical standards. Indeed, even the existing net asset positions of these two countries are difficult to explain on the basis of underlying fundamentals.

Figure 2.3. Net Foreign Positions and External Financing Flows

(Percent of GDP)

Imbalances have caused divergences in net asset positions, notably between growing net liabilities in the United States and the United Kingdom, and assets of Japan. There was also a notable increase in net equity outflows from the euro area in the late 1990s and, more recently, in inflows to the United States.

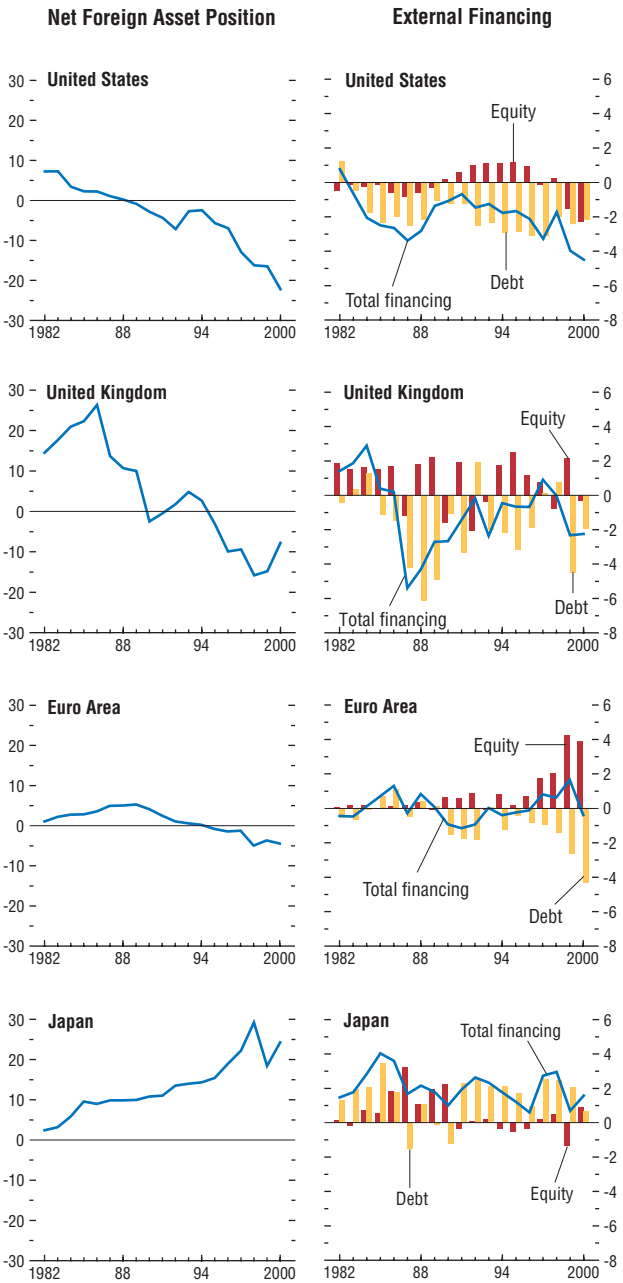
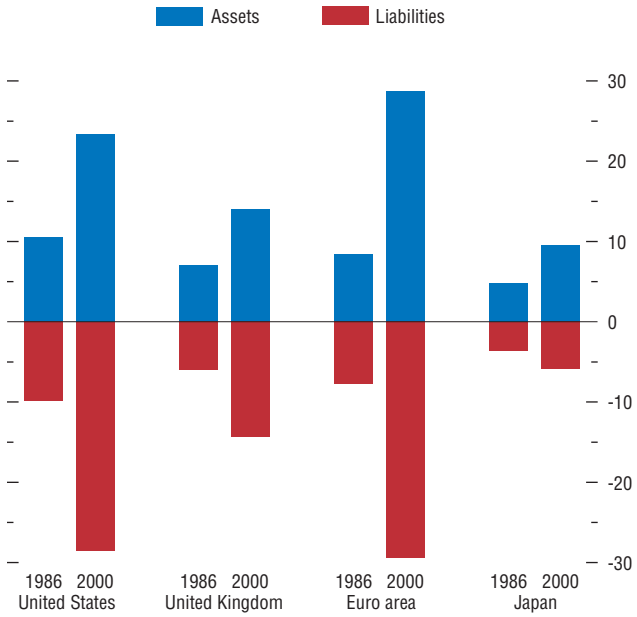


Figure 2.4. Assets and Liabilities Positions
(Percent of world GDP)

Gross assets and liabilities have grown rapidly in both deficit and surplus countries and regions, but remain relatively low in Japan.



Sources: IMF, *Balance of Payments Statistics*.

For example, a recent paper relating international asset positions across a wide range of countries to government debt, relative GDP per capita, and demographic trends finds that these fundamentals predict net foreign asset ratios of only a few percent of GDP for Japan and the United States (Lane and Milesi-Ferretti, 2001). This implies that net foreign asset ratios are unlikely to maintain their current trajectories over the medium term.

Large external adjustments would be needed to stabilize net foreign asset positions as a ratio to GDP. (A slow divergence of net foreign asset positions may be justified by fundamentals; in particular, more rapid aging in Japan compared with the United States probably implies some accumulation of net foreign assets by Japan and decumulation by the United States.) External stability calculations focus on the balance of trade in goods and nonfactor services (which excludes payments on capital and unrequited transfers), rather than the current account, just as fiscal sustainability calculations focus on the primary balance (which excludes interest payments), rather than the overall balance (Lane and Milesi-Ferretti, 2001).[14] Even taking account of the fact that the United States has consistently experienced higher rates of return on its assets than most other countries, stabilizing the net foreign asset position would require adjustments in the trade balance of over 3½ percent of GDP in Japan, the United States, and the United Kingdom (Table 2.2, based on calculations in Lane and Milesi-Ferretti, 2001). Past experience indicates that significant reductions in external deficits generally occur through a combination of a slowdown in output growth, which lowers demand relative to output through its effect on consumption and investment, and a depreciation of the real exchange rate, which switches spending from foreign to domestic goods. The

[14]Indeed, in the simple case where all countries have the same rate of return on their assets, stabilizing net foreign assets (liabilities) as a ratio to GDP implies running a trade deficit (surplus), as the real economy needs to release (generate) foreign exchange.

time over which external adjustment occurs is also important. An extended period allows more time for countries to adjust their production structure, thereby reducing the size of the needed exchange rate adjustment (Obstfeld and Rogoff, 2000).

To assess the likely speed and nature of the adjustment, it is useful to begin by examining the historical experience. The existing literature has looked at the experience of current account reversals in developing and industrial countries (see Milesi-Ferretti and Razin, 1998, on developing countries; and Freund, 2000, on industrial countries).[15] The authors have extended this analysis by focusing on the experience of countries experiencing large deficits (in addition to those with current account reversals) and conducting a regression analysis to examine which factors help determine the response to these events. Turning to the experience of countries that have run a current account deficit of over 4 percentage points of GDP for three years in a row, the first result is that such events are rare.[16] Only 12 episodes were identified using data on 21 industrial countries since 1973, all involving relatively small and open economies (it is unclear whether adjustment in these types of countries would be more or less difficult than in larger and more closed economies).[17] The main conclusions of this analysis, illustrated in Figure 2.5, are the following (see Box 2.2 for more details):

- *Large deficits are generally not sustained for long.* After three years of large deficits, the average country experienced an improvement in the current account of 2 percentage points of GDP over the next three years. This was associated with a significant depreciation of the real exchange rate and a fall in output growth, both beginning a year or more before the current account adjustment (due to J-curve effects, as volumes of exports and imports respond sluggishly to exchange rate depreciation). Within the sample, about one-fourth of the countries were able to maintain an appreciated exchange rate and large current account deficit, while one-fourth experienced a more rapid and potentially disruptive adjustment with a sharp current account reversal, rapid depreciation in the currency, and a significant fall in output growth.
- *The size of the adjustment depends upon initial conditions, structural factors, and policies.* Regressions examining the determinants of the adjustment indicate that the current account adjustment (real exchange rate depreciation) increases the larger the initial deficit (real appreciation), the more closed the economy, and the more expansionary the subsequent fiscal policy. As an expansionary fiscal policy lowers government net saving, this implies that such a policy results in larger and potentially disruptive increases in private sector net saving. By contrast, the impact on real GDP growth appears to be largely independent of these factors.

Table 2.2. Average Trade Balance on Goods and Nonfactor Services
(Percent of GDP)

	Actual 2000–02	Needed to Stabilize International Investment Position as Ratio of GDP (1990–98)	Implied Adjustment
Major deficit countries			
United States	–4.4	–0.4	4.0
United Kingdom	–3.2	1.2	4.4
Major surplus areas			
Euro area	1.6	1.4[1]	–0.2
Japan	2.2	–1.4	–3.6

Source: IMF staff calculations based on work in Lane and Milesi-Ferretti (2001).
[1]Weighted average of Belgium, France, Germany, Italy, the Netherlands, and Spain.

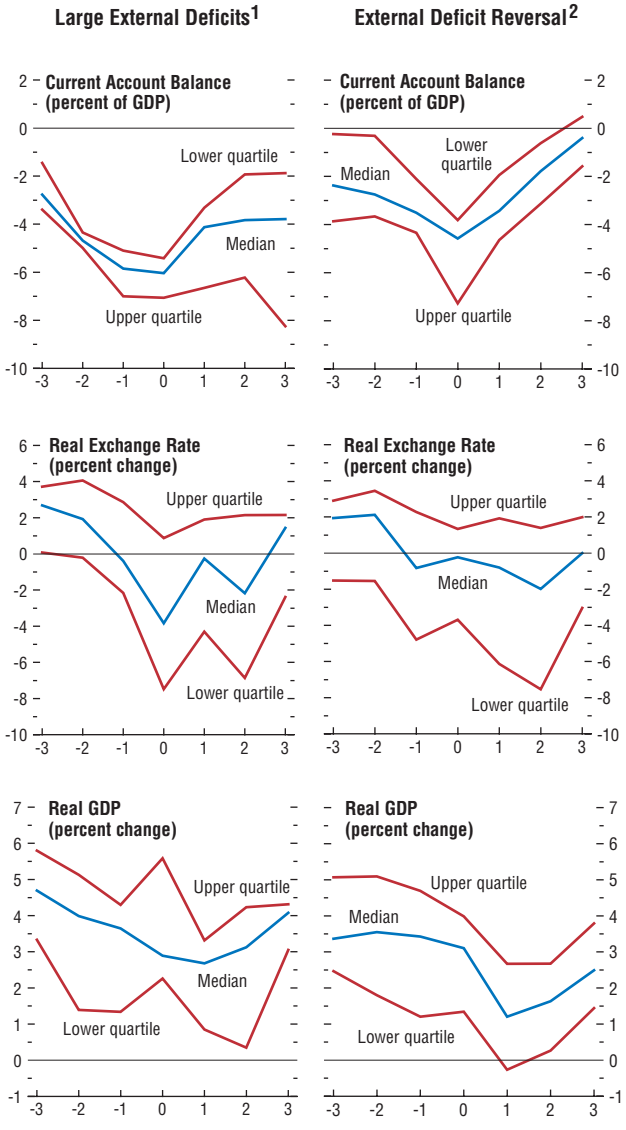
[15]The experience of countries running surpluses has not been studied in any depth, as surpluses are less likely to lead to a disruptive adjustment. See also Edwards (2001).

[16]This is the approximate size of the actual and projected U.S. deficit ratio between 2000 and 2002 (although double that of the United Kingdom).

[17]On the one hand, small open economies tend to be more constrained in terms of access to financing and borrowing in their own currency. On the other hand, external adjustment is easier as they have larger traded goods sectors.

Figure 2.5. Adjustment of External Imbalances in Industrial Countries, 1973–2001

Countries experiencing large deficits tend to experience reversal in their external position, including depreciation in their exchange rate and reduction in growth.



[1]A current account deficit of over 4 percent of GDP for three years.
[2]See Freund (2000) for the definition.

Given the limited number of countries experiencing large current account deficits, the study followed up on earlier work by examining the experience of deficit countries undergoing a significant current account adjustment. This approach has the advantage of identifying almost three times as many events, including several involving major industrial countries, but of course presupposes that a current account adjustment will occur. The results from this exercise were broadly similar, except (almost by definition) the response of the current account is larger and less varied, and the fall in activity is also more marked. These results correspond closely to those in Freund (2000), who did a similar analysis using a shorter sample period.

The historical analysis suggests the likelihood of a reduction in external imbalances over the next few years, involving slowing output growth in the deficit countries and a depreciation of their currencies a year or so before these reductions are seen. Given the size of the deficit countries in the global economy, this in turn implies—all else being equal—appreciations of the currencies of the surplus countries. History also suggests that a rapid and potentially more disruptive adjustment is a significant possibility.

An alternative way to examine possible adjustment paths is to create scenarios using MULTIMOD. First, a scenario was developed that mimicked many of the developments across the industrial country regions since 1996. The acceleration in deficit country output growth was created by introducing a gradual increase in assumed underlying productivity growth in the deficit countries (particularly the United States). To mirror the size of the increase in external deficits in the deficit countries, as well as the rise in exchange rates and equity prices, it was further assumed that these increases in productivity growth also led to a reduction in the relative risk premium on deficit countries' assets (again, most notably in the United States). Finally, to mimic the increase in equity prices elsewhere and the benefits of structural reforms and the IT revolution, a gradual increase in productivity growth in the surplus

Table 2.3. Scenario of Higher Expected Productivity and Alternative Scenario Where Expectations Are Overoptimistic
(Deviations from pre-1996 baseline)

	1996–99	2000	2001	2002	2003	2004	2005
United States							
Real GDP growth							
Higher productivity	1.0	0.9	1.4	0.8	0.8	1.0	1.3
Overoptimistic productivity	. . .	. . .	. . .	. . .	–3.1	0.5	0.8
Change	. . .	. . .	. . .	. . .	–3.9	–0.5	–0.5
Current account to GDP							
Higher productivity	–0.5	–1.3	–1.6	–1.9	–2.3	–2.7	–3.0
Overoptimistic productivity	. . .	. . .	. . .	. . .	–2.2	–2.1	–2.2
Change	. . .	. . .	. . .	. . .	–0.1	–0.6	–0.8
Real exchange rate							
Higher productivity	9.0	17.3	19.2	16.1	9.9	3.1	–3.4
Overoptimistic productivity	. . .	. . .	. . .	. . .	4.8	–3.3	–9.1
Change	. . .	. . .	. . .	. . .	–5.1	–6.4	–5.7
Euro area							
Real GDP growth							
Higher productivity	–0.3	–0.1	–0.2	0.2	0.5	0.5	0.6
Overoptimistic productivity	. . .	. . .	. . .	. . .	0.3	0.8	0.3
Change	. . .	. . .	. . .	. . .	–0.2	0.3	–0.3
Current account to GDP							
Higher productivity	0.4	1.5	2.0	2.5	2.6	2.8	2.6
Overoptimistic productivity	. . .	. . .	. . .	. . .	2.1	2.0	1.9
Change	. . .	. . .	. . .	. . .	–0.5	–0.8	–0.7
Real exchange rate							
Higher productivity	4.0	–10.3	–11.5	–11.2	–9.4	–6.9	–4.0
Overoptimistic productivity	. . .	. . .	. . .	. . .	–7.0	–3.3	–0.3
Change	. . .	. . .	. . .	. . .	2.4	6.6	3.7
Japan							
Real GDP growth							
Higher productivity	–0.2	–0.4	–0.1	0.3	0.2	0.3	0.3
Overoptimistic productivity	. . .	. . .	. . .	. . .	–1.1	0.4	—
Change	. . .	. . .	. . .	. . .	–1.3	0.1	–0.3
Current account to GDP							
Higher productivity	0.6	1.5	2.2	3.0	3.1	3.3	3.3
Overoptimistic productivity	. . .	. . .	. . .	. . .	2.8	2.1	1.9
Change	. . .	. . .	. . .	. . .	–0.3	–1.2	–2.2
Real exchange rate							
Higher productivity	–5.2	–6.1	–7.5	–6.5	–2.9	0.8	4.4
Overoptimistic productivity	. . .	. . .	. . .	. . .	0.5	5.3	9.2
Change	. . .	. . .	. . .	. . .	3.4	4.5	4.8
Other industrial countries							
Real GDP growth							
Higher productivity	–0.2	–0.2	—	–0.1	0.3	0.5	0.6
Overoptimistic productivity	. . .	. . .	. . .	. . .	–0.2	0.7	0.3
Change	. . .	. . .	. . .	. . .	–0.5	0.2	–0.3
Current account to GDP							
Higher productivity	0.7	1.6	2.0	2.4	2.7	3.2	3.7
Overoptimistic productivity	. . .	. . .	. . .	. . .	2.2	2.1	2.2
Change	. . .	. . .	. . .	. . .	–0.5	–1.1	–1.4
Real exchange rate							
Higher productivity	–0.6	–0.3	0.1	1.2	1.9	2.7	3.5
Overoptimistic productivity	. . .	. . .	. . .	. . .	1.9	2.6	3.1
Change	. . .	. . .	. . .	. . .	—	–0.1	–0.4

Source: IMF MULTIMOD simulations.

countries from 2004 was introduced. This baseline "high productivity" scenario is reported in Table 2.3. The key issue is how such a scenario might play out. If the expected acceleration in productivity elsewhere occurs, as assumed in the baseline scenario, the imbalances erode in a benign fashion. There is a smooth rotation of demand and a gradual depreciation of the dol-

Box 2.2. How Have External Deficits Adjusted in the Past?

This box provides details of the authors' analysis of the historical experience with external deficits since 1973. It extends earlier work examining current account reversals (Milesi-Ferretti and Razin, 1998, and Freund, 2000) by also investigating the experience of countries with large deficits and by using regression techniques to examine the importance of various factors in determining the response to a large deficit or current account reversal.

More specifically, the authors examined the experience of 21 industrial countries over 1973–2001.[1] The first event studied was of countries whose current account deficits had exceeded 4 percent of GDP for three consecutive years.[2] These events are rare—only 12 cases were found—and all involved relatively small and open economies, underlining the unusual nature of the current experience in the United States.[3] In addition, following Freund (2000), the experience of industrial countries undergoing large and persistent current account adjustments or reversals was studied.[4] This yielded 33 episodes, and hence the possibility for a richer econometric specification, including events experienced by major economies such as France (1982), the United Kingdom (1974 and 1990), and the United States (1987).

For each country group, the staff's econometric analysis examined the determinants of the change in the current account balance as a ratio to GDP, annualized real exchange rate appreciation, and annualized rate of output growth between the four years culminating in the event and the three subsequent years. The explanatory variables were of three types.

- *Initial conditions.* The relationship between the subsequent adjustment and the size of the initial deficit, rate of real exchange rate appreciation, and level of output growth was examined. All variables were averaged over the four years culminating in the event, and hence were predetermined.
- *Structural factors.* The role of underlying structural factors, in particular a country's openness to trade, can also matter. A less open economy would appear to require a larger exchange rate adjustment to effect the same external adjustment as a more open one. These factors were also measured using the average over the four years culminating in the event, and were hence also predetermined.
- *Macroeconomic policies.* Changes in the fiscal balance and real short-term interest rates between the initial buildup to the event and the subsequent period were included to examine the role of policy in exacerbating or mitigating adjustment. This was done by taking the change in both variables between the average in the four years running up to the event and the three subsequent years. Potential biases due to the joint impact of activity on the current account and the policy response were examined by including the change in the output growth rate in the regressions. As the impact on coefficients was found to be small, the simpler regressions excluding the change in output growth are reported.

The econometric results support the view that initial conditions, structural factors, and fiscal policy response all play an important role in the adjustment of large external imbalances, while the impact of real short-term interest rates is almost always small and insignificant (see the table). The results are qualitatively similar for large current account deficits and reversals, although the coefficients tend to be smaller in the latter case. Given the small sample of countries with large deficits, the latter coefficients are likely to be more reliable (Goldberger, 1991).[5]

Note: The main author of this box is Marco Terrones.

[1]The sample comprises Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

[2]This criterion was selected to resemble the experience of the United States over recent years.

[3]Given the small sample, the staff also examined the 19 cases of countries with current account deficits of over 3 percentage points of GDP for three years in a row, which included the United Kingdom in 1990.

[4]See Freund (2000) for the definition.

[5]Indeed, the analysis of countries running deficits of 3 percent for three years in a row produced similar coefficients to those found when analyzing current account reversals.

Regression Results on the Adjustment of External Imbalances

	Dependent Variable					
	Change in the current account[1] *(Percent of GDP)*		Change in annualized real rate of appreciation[1] *(Percent)*		Adjustment of output growth[1] *(Percent)*	
Explanatory Variables	Large deficits	Reversals[2]	Large deficits	Reversals	Large deficits	Reversals
Initial conditions[3]						
Initial current account balance	–2.30*	–0.49*	. . .	. . .	. . .	. . .
Initial rate of real appreciation	. . .	. . .	–1.93*	–1.14*	. . .	. . .
Initial output growth	. . .	. . .	. . .	. . .	–0.36	–0.80*
Structural factors						
Openness[4]	–0.14*	—	–0.08*	0.02	–0.03	0.01
Policy responses						
Improvement in fiscal balance[1]	–0.37*	–0.15**	0.43*	0.51*	–0.08	–0.01
Higher real interest rates[1]	0.05	–0.01	0.01	0.01	0.02	0.01
Constant	–0.05*	—	–0.06*	–0.02	0.02	0.01
Memorandum						
R^2	0.89	0.37	0.98	0.54	0.22	0.54
Number of observations	12	32	12	32	12	32

Note: One and two asterisks represent statistical significance at 5 and 10 percent, respectively.
[1]Difference between the three-year annual average following the event with the previous four years.
[2]This regression equation also included the initial terms of trade growth, which was statistically significant.
[3]Annual averages of the four-year period running up to the event.
[4]Measured as the ratio of the sum of exports and imports of goods and services to GDP.

The following results stand out from the analysis.

- *Current account.* The current account improvement increases as the size of the initial current account deficit increases. In the reversals case, the coefficient of –½ implies that over the next three years countries with larger initial deficits still have a somewhat weaker external position than those with smaller initial deficits, although the gap narrows. Countries that are more open to international trade also tend to experience a more modest current account improvement. Turning to policies, countries that tighten their fiscal policy (that is, reduce their fiscal deficit as a ratio to GDP by a greater amount) generally experience a smaller current account adjustment. Apparently, the relative improvement in public net saving is on average more than offset by the opposite response in the private sector saving-investment balance.
- *Real exchange rate appreciation.* Countries with larger real appreciations in the run-up to an event have a larger real depreciation subsequently. Indeed, by the end of the full period, the earlier appreciation is basically offset. As expected, the rate of depreciation of the real exchange rate decreases the more open the economy. On the policy front, a tighter fiscal policy reduces the real exchange rate depreciation, while there is no significant effect from a tighter monetary policy.
- *Output growth.* The adjustment in output growth seems to depend only on the initial rate of economic growth, and to fall by more the faster the expansion in output before the event. The outcome appears largely independent of the other explanatory variables, including openness and the fiscal stance.

These results suggest that the adjustment process largely depends on the initial imbalance, the degree of openness of the economy, and the policy response. In particular, fiscal policy appears to be a potentially useful instrument for reducing the risk of a rapid and potentially disruptive adjustment in the current account and private sector net saving balance.

lar over several years, creating an immediate response in trade volumes (although the nominal current account balance continues to expand, reflecting J-curve effects).

In contrast, if it is assumed that recent views of underlying productivity growth have been too high, a more disruptive adjustment is possible. In particular, if the increase in underlying productivity growth is halved in all countries, this leads to a marked deceleration in the growth of global output in 2003, notably in the deficit countries but also elsewhere, particularly in Japan given the limited room for easing policy (this is the "overoptimistic productivity" scenario in Table 2.3). The exchange rates of the deficit countries also depreciate faster in the short term, and this, together with relatively larger fall in activity, results in a rapid improvement in their external position. Similarly disruptive outcomes can be generated by lowering expected income growth, even if it is assumed to be unrelated to forecast productivity. In particular, significant falls in output growth and reductions in external imbalances can be created by reducing expectations of future growth of wages and profits that are assumed to have been overoptimistic and mutually inconsistent. This illustrates how unexpected financial shocks (such as a reevaluation of accounting standards or future profit trends) can feed through into the real economy.

Policy Implications

The results of this analysis can be briefly summarized as follows. First, current account imbalances matter because of the limited integration of goods markets across countries. Second, the growth in imbalances reflects both the dynamism of the deficit countries in the late 1990s and financial excesses linked with the IT revolution. Third, using a range of theoretical and empirical approaches, existing imbalances appear unlikely to be viable over the medium term. If the adjustment occurs gradually it would likely be relatively benign, but a rapid adjustment could result in a diminution in global growth if lower demand in the deficit countries is not offset by higher demand elsewhere, significant dislocation in tradable good sectors around the world, protectionist pressures, and changes in wealth.

How should policymakers respond in such circumstances? Given the unpredictability of exchange rate movements over the short term, macroeconomic policies should not be directed to a specific current account balance. However, given the possibility of a disruptive outcome due to a range of unexpected events, it would be prudent for policymakers to orient their medium-term objectives with a view to minimizing the risk of a less benign outcome, particularly if this achieves other desirable medium-term objectives. In the deficit countries, this analysis reinforces the argument for credible plans for medium-term fiscal consolidation—already needed in both deficit and surplus countries for a number of other reasons, including to prepare for aging populations—as a tighter fiscal policy appears to diminish the likelihood of a rapid adjustment of large current account deficits. At the same time, consideration could be given to other structural issues, including reforms of accounting rules and enforcement procedures aimed at maintaining investor confidence, where recent reforms in the United States (which houses the world's largest and most dominant equity markets) provide a good start, as well as other policies to encourage private saving in a nondistortionary manner (see also McKinnon, 2001).

In the surplus countries, the main policy imperative is to press ahead rapidly with needed structural reforms to make economies more flexible, boost potential growth, and support demand. In continental Europe, the main priorities are reducing labor markets' rigidities and increasing competition in product markets; and in east Asia, pushing ahead with banking and corporate reform and, in some cases, more flexible exchange rate arrangements. By creating a more dynamic environment, such reforms would increase the likelihood of a smooth rotation of demand from the deficit countries to the surplus

countries, thereby minimizing the chances of a significant deceleration of global growth or unsustainable booms such as occurred in Japan and Germany in the late 1980s.

How Do Industrial Country Agricultural Policies Affect Developing Countries?[18]

Industrial economies provide extremely high levels of support to their farmers. The OECD has calculated that total transfers from consumers and taxpayers to farmers averaged about 30 percent of gross farm income in 2001, cost over $300 billion (1.3 percent of GDP), and amounted to six times overseas development aid.[19] Support to agriculture is much higher than that given to almost any other significant sector of industrial economies, and—as discussed below—is generally provided in a manner that is highly inefficient at achieving its underlying social aims. The high levels of support largely reflect the influence of special interests, which gain significantly, while the larger losses to consumers are more diffuse and less visible.

While agricultural support benefits some farmers in industrial countries, it can actually hurt others by increasing the prices they pay for inputs and depressing world prices for those who receive relatively little support. Furthermore, it imposes substantial costs on consumers and taxpayers in industrial countries, and on commodity producers in the rest of the world, many of whom are poor. Indeed, the vast majority of the world's poor are farmers in developing countries, whose product prices are depressed by industrial country farm-support programs. The nature and extent of these costs depend importantly on the type of support: trade measures—tariffs and export subsidies—are generally the most inefficient and depress international prices the most, while production subsidies and direct income support are somewhat less damaging.

The immediate costs come through three main channels.

- First, to the extent that agricultural support policies in industrial countries raise prices to consumers—for example, through tariffs and export subsidies—consumers' real income and purchases of agricultural products are reduced.
- Second, agricultural support encourages greater domestic production, moving resources away from more productive activities. Together with lower domestic consumption, this means that exports are greater (or, if the country is an importer, imports are less).
- Third, the greater net exports of farm products generated by agricultural support tend to increase supply on world markets, driving down international food prices. This hurts other commodity producers, including those in developing countries (although, as discussed below, net buyers of food in developing countries could gain).

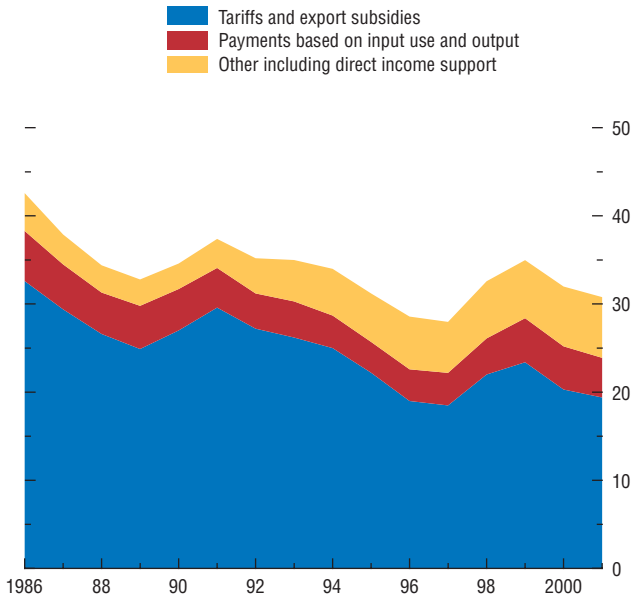
Beyond these immediate costs, however, agricultural support has a number of other damaging effects. First, protection imposes substantial long-run costs by inducing countries to specialize in areas that are not to their long-run advantage, and by reducing trade and its associated benefits for growth. While these costs are difficult to calculate precisely, they may in practice be several times greater than those described above. Second, most industrial country support aims to stabilize prices facing domestic farmers and often also consumers, and thereby insulate them from global shocks. However, these efforts may not be successful, as they tend to reduce the effectiveness of each country's attempts at stabilization and may lead to increased instability in countries that do not intervene (Tyers and Anderson, 1992). This instability can cause serious fiscal and balance of payments difficulties for commodity producers.

[18]The main author of this essay is Stephen Tokarick; Bennett Sutton provided research assistance, and Yongzheng Yang ran the GTAP simulations.

[19]Based on the producer support estimate (PSE), which measures gross transfers from consumer and taxpayers to agricultural producers as a percentage of gross farm receipts.

Figure 2.6. Composition of Producer Support Estimates (PSE)
(Percent of farm receipts)

The average PSE has declined modestly in recent years. The composition of support has shifted slightly away from tariffs and subsidies.



Source: Organization for Economic Cooperation and Development (2002).

Types of Agricultural Support Policies in Industrial Countries

Support to industrial country farmers averaged 31 percent of farm income in 2001, about two-thirds of which comes in the form of price-based support (Figure 2.6).[20] Support levels varied widely across countries, ranging from 69 percent in Switzerland to a low of 1 percent in New Zealand (Figure 2.7).[21] In general—and unsurprisingly—support was smallest in countries that have efficient, export-oriented sectors (notably, Australia and New Zealand) and largest in those that are relatively inefficient and import substituting (notably, Japan, Korea, Norway, and Switzerland). Canada, the European Union, and the United States fell between these two extremes, although support levels in the European Union, at about 35 percent, were significantly higher than in Canada and the United States (about 20 percent).

The nature of agricultural support provided also varied significantly across countries and commodities (Figure 2.7). In Japan and Korea, support was provided almost entirely through policies that alter prices (primarily import tariffs, since both countries import, rather than export, agricultural products). Elsewhere, the levels of price-based support were generally smaller, although still substantial. The European Union is the major user of export subsidies, while other countries, including the United States, tend to use production subsidies, which, as already noted, are somewhat less inefficient. Partly as a result of these countries' efficiency in agricultural production, inefficient price-based support comprises a smaller proportion of total support in Australia, Canada, New Zealand, and the United States, compared with the European Union, Japan, and Korea. Support also varies across commodities, with higher levels of sup-

[20]Throughout this essay, Korea is included in the analysis although it is not in the *World Economic Outlook* definition of industrial countries, as it is wealthy and has high levels of agricultural support.

[21]Organization for Economic Cooperation and Development (2002).

port for dairy and sugar production—sectors that are import competing and where it is easy for producers to organize politically. The somewhat haphazard pattern of support across commodities greatly increases the welfare costs of these policies.

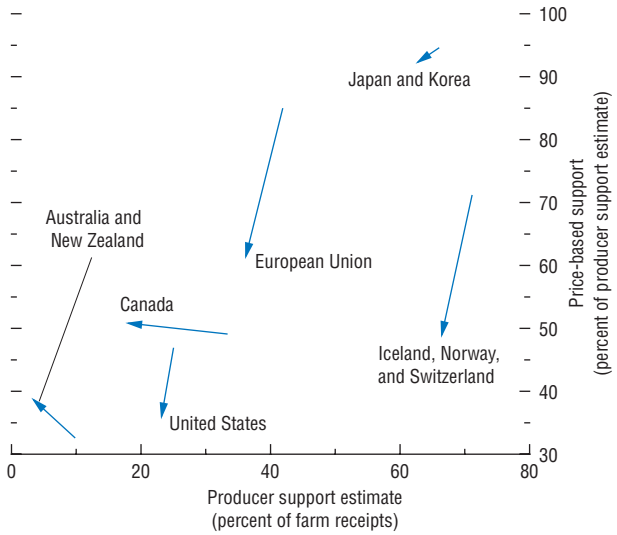
There have been some welcome reductions in the size and desirable changes in the composition of industrial country agricultural support over the past decade or so. The average level of support has declined from 38 percent in 1986–88 to 31 percent in 1999–2001, led by substantial cuts in support by Canada and New Zealand, with more limited progress elsewhere, including the European Union, Japan, and the United States (Figure 2.7). Over the same period, there has also been some shift away from price-based support toward less distorting income support, particularly in the European Union and other European countries (although price-based support still remains higher than in the United States). Recently, the European Commission has proposed a reform of the Common Agricultural Policy (CAP) that, if adopted, would further reduce the share of price-based support. By contrast, the 2002 U.S. Farm Bill moves in the opposite direction, locking in much of the emergency support given to farmers in recent years in the form of inefficient price supports. On a more positive note, the United States recently put forth a proposal that calls for a reduction in the maximum agricultural tariff to 25 percent, elimination of all export subsidies, and a limit on domestic support of no more than 5 percent of agricultural production in all countries.

Industrial countries have in some cases sought to offset the negative effects of agricultural support on the poorest countries by providing preferential access schemes. For example, the European Union has for some time provided preferential access to its markets for some goods (notably beef and sugar) from selected African, Caribbean, and Pacific countries, and the United States allows imports of certain products to enter duty-free from designated countries under the Generalized System of Preferences

Figure 2.7. Changes in Overall Producer Support Estimates (PSE) and Price-based Support, 1986–2001[1]

(PSE in percent of total farm receipts; price-based support in percent of PSE)

Most countries have reduced their use of price-based support.

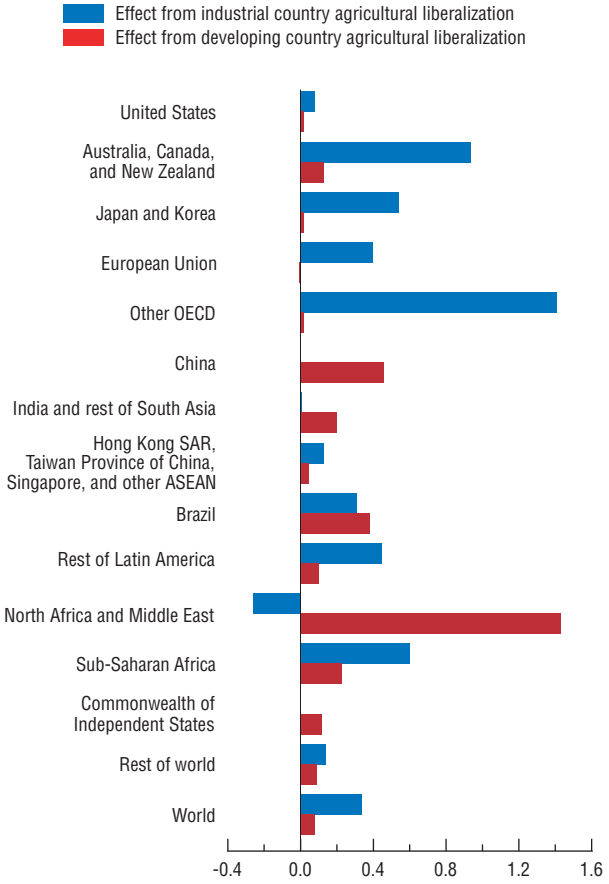


Source: Organization for Economic Cooperation and Development (2002).

[1]The origin of each arrow represents average 1986–88 producer support estimate and percent of producer support estimate composed of price-based support. The head of each arrow represents the average 1999–2001 value.

Figure 2.8. Welfare Effects of Agricultural Liberalization: Industrial Versus Developing Countries
(Percent of GDP)

There are aggregate gains from liberalization.



Sources: Simulations with GTAP model; and IMF staff estimates.

(GSP).[22] While these preference schemes aim to assist the development of poor countries, and have played a role in the successful development of at least one country (Mauritius), they harm the countries that do not receive the preferences and weaken the incentive that recipient countries have to reform their own policies (and to lobby for reform in industrial countries). They can also lead to significant transitional costs if the preferential scheme is dismantled, as illustrated by tensions over the preferential access granted by the European Union to certain Caribbean producers of bananas.

What Is the Impact of Removing Agricultural Support?

If agricultural support in industrial countries were eliminated tomorrow, there would be significant gains, both for industrial countries themselves and for many countries—particularly commodity producers—in the rest of the world. To assess the size and extent of the static gains from eliminating inefficiencies caused by distorted prices (a widely used if somewhat conservative assessment of the costs), the IMF staff used a general equilibrium model of the world economy (GTAP).[23] The results indicate that agricultural liberalization by industrial countries would increase their own real income by 0.4 percentage points of GDP, almost $92 billion at 1997 prices (Figure 2.8 and Table 2.4). The largest gainers are the major agricultural producers (Australia, Canada, and New Zealand), as a result of higher world prices and greater access to overseas markets, and the countries with most distorted domestic markets (the European

[22]These preferences generally apply to tropical products that do not compete with domestically produced goods.

[23]For a description of the GTAP modeling framework, see Hertel (1997). The model uses data on trade flows and agricultural support levels for 1997 and adopts a number of assumptions that influence the results, including full employment. The results also depend on a large number of parameters, whose estimated values are often imprecise.

Table 2.4. Welfare Effects of Industrial, Developing, and Global Agricultural Liberalization

	Industrial Country Liberalization			Developing Country Liberalization			Global Liberalization		
	Change in:			Change in:			Change in:		
	Welfare ($billion)	Welfare (percent of GDP)	Terms of trade (percent)	Welfare ($billion)	Welfare (percent of GDP)	Terms of trade (percent)	Welfare ($billion)	Welfare (percent of GDP)	Terms of trade (percent)
Industrial countries									
United States	. . .	0.08	0.4	. . .	0.02	0.2	. . .	0.10	0.6
Australia, New Zealand, and Canada	. . .	0.94	2.2	. . .	0.13	0.5	. . .	1.11	2.8
Japan and Korea	. . .	0.54	–1.1	. . .	0.02	0.1	. . .	0.56	–1.0
European Union	. . .	0.40	–0.3	. . .	–0.01	0.1	. . .	0.41	–0.2
Other OECD	. . .	1.41	–0.9	. . .	0.02	0.1	. . .	1.46	–0.8
Total industrial	**91.7**	**0.40**	**—**	**2.8**	**0.01**	**—**	**97.8**	**0.43**	**—**
Developing countries									
China	. . .	—	0.4	. . .	0.46	–0.7	. . .	0.42	–0.4
India and rest of South Asia	. . .	0.01	0.4	. . .	0.20	–0.2	. . .	0.20	0.1
Hong Kong SAR, Taiwan Province of China, Singapore, and rest of ASEAN	. . .	0.13	0.2	. . .	0.05	–0.1	. . .	0.17	0.1
Brazil	. . .	0.31	1.4	. . .	0.38	1.0	. . .	0.72	2.6
Rest of Latin America	. . .	0.45	1.7	. . .	0.10	—	. . .	0.54	1.6
North Africa and Middle East	. . .	–0.26	–0.3	. . .	1.43	–1.1	. . .	1.24	–1.6
Sub-Saharan Africa	. . .	0.60	1.6	. . .	0.23	–0.4	. . .	0.81	0.9
Former Soviet Union	. . .	—	0.6	. . .	0.12	–0.2	. . .	0.23	0.2
Rest of world		0.14	0.6	. . .	0.09	–0.2	. . .	0.27	0.4
Total developing	**8.0**	**0.13**	**—**	**21.4**	**0.36**	**—**	**30.4**	**0.51**	**—**
World	**99.7**	**0.34**	**—**	**24.2**	**0.08**	**—**	**128.2**	**0.44**	**—**

Source: Simulations with the GTAP model.

Union, Japan, Korea, Norway, and Switzerland), where domestic food prices fall and generate gains for consumers. In contrast, the gains for the United States are more modest, since its exports of agricultural goods are not particularly large in relation to its economy and the prices paid by consumers are not as distorted as they are in many other industrial countries.

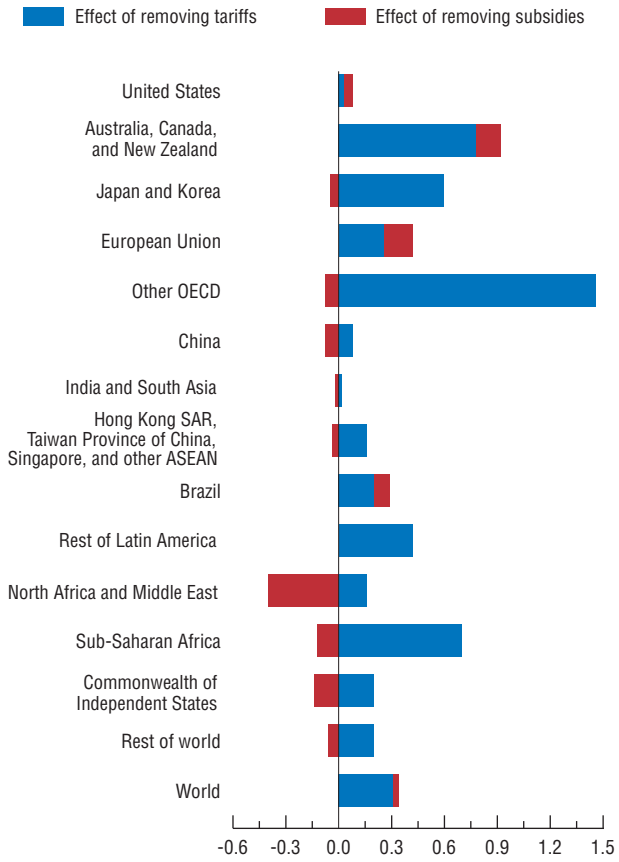
Developing countries also gain from industrial country liberalization, particularly regions that are significant agricultural exporters, with real income increasing by slightly over 0.1 percent of their GDP (equivalent to about one-sixth of aid flows). The gains come largely from tariff removal, consistent with the observation that tariffs reduce world prices of commodities that developing countries export, while, in the case of export subsidies, many developing countries benefit from the resulting lower prices, as they are importers of these goods (Cernat, Laird, and Turrini, 2002) (Figure 2.9 and Table 2.5).[24] The major exporting regions, such as Latin America and sub-Saharan Africa, gain the most—between 0.3 and 0.6 percent of GDP. Elsewhere, the gains are smaller and are slightly negative in one region that is a particularly large importer of food (North Africa and the Middle East). In general, these results are broadly consistent with the findings from other studies, such as Anderson and others (2001), and from the more specific liberalization scenarios in the Uruguay Round (Harrison, Rutherford, and Tarr, 1997).

The dynamic gains that would arise from agricultural liberalization could far exceed the static gains, including in poor countries with large agricultural sectors. Dynamic gains can arise as countries adopt new technologies, increase investment, accelerate productivity growth, and specialize in accord with their comparative

[24]The costs of export subsidies are often underestimated because the issue of financing these subsidies is usually not considered.

Figure 2.9. Welfare Effects of Removing Industrial Country Tariffs and Subsidies
(Percent of GDP)

Tariff removal benefits all regions, while some regions are hurt by subsidy removal.



Sources: Simulations with GTAP model; and IMF staff estimates.

advantage. Agricultural liberalization in both industrial and developing countries results in a more efficient allocation of resources, thereby increasing the rate of return on capital and generally inducing an increase in investment.[25] In addition, the reduction in the variability of global commodity prices as a result of liberalization will also lead to an increase in investment in the agricultural sectors of exporting countries. Finally, some of the larger developing country exporters with more capital-intensive production, such as Argentina and South Africa, would probably be able to exploit economies of scale from more open markets.

Several studies have pointed to dynamic gains from liberalization that are much greater than the static gains. For example, Francois, McDonald, and Nordström (1996) report that the dynamic benefits of agricultural liberalization in the Uruguay Round to Africa could be easily double the static effects. In another study, the World Bank (2002) estimates that the static gains to developing countries in 2015 from agricultural liberalization by developed countries would be $31 billion (in 1997 dollars), but this gain would increase over threefold to $99 billion if dynamic effects are considered. Indeed, these estimates may be on the conservative side, given the widespread evidence that increased trade is one of the keys to successful development in poorer countries.[26]

While developing countries benefit from liberalization by industrial countries, even larger gains come from lifting their own restrictions (see also Anderson and others, 2001). The static gains in real income from agricultural liberalization by all developing countries are estimated at 0.4 percentage points of their GDP, several times the gains from industrial country liberalization (Table 2.4). As developing countries generally use tariffs to support domestic agricultural pro-

[25]Even if production becomes more efficient, investment could fall, depending on the capital intensity of production in agriculture relative to other sectors.

[26]Krueger and Berg (2002) discuss the importance of trade for rapid development, while Rodriguez and Rodrik (2001) offer a more skeptical view.

Table 2.5. Welfare Effects of Agricultural Liberalization by Industrial Countries

	Tariff Removal			Subsidy Removal			Tariff and Subsidy Removal		
	Change in:			Change in:			Change in:		
	Welfare ($billion)	Welfare (percent of GDP)	Terms of trade (percent)	Welfare ($billion)	Welfare (percent of GDP)	Terms of trade (percent)	Welfare ($billion)	Welfare (percent of GDP)	Terms of trade (percent)
Industrial countries									
United States	. . .	0.03	0.1	. . .	0.50	0.3	. . .	0.08	0.4
Australia, New Zealand, and Canada	. . .	0.78	1.6	. . .	0.14	0.5	. . .	0.94	2.2
Japan and Korea	. . .	0.60	–0.7	. . .	–0.05	–0.3	. . .	0.54	–1.1
European Union	. . .	0.26	–0.3	. . .	0.16	—	. . .	0.40	–0.3
Other OECD	. . .	1.46	–0.8	. . .	–0.08	–0.1	. . .	1.41	–0.9
Total industrial	78.6	0.34	. . .	14.1	0.06	. . .	91.7	0.40	. . .
Developing countries									
China	. . .	0.08	0.4	. . .	–0.08	—	. . .	—	0.4
India and rest of South Asia	. . .	0.02	0.3	. . .	–0.02	–0.2	. . .	0.01	0.4
Hong Kong SAR, Taiwan Province of China, Singapore, and rest of ASEAN	. . .	0.16	0.2	. . .	–0.04	–0.1	. . .	0.13	0.2
Brazil	. . .	0.20	0.9	. . .	0.09	0.4	. . .	0.31	1.4
Rest of Latin America	. . .	0.42	1.4	. . .	—	0.1	. . .	0.45	1.7
North Africa and Middle East	. . .	0.16	0.2	. . .	–0.40	–0.5	. . .	–0.26	–0.3
Sub-Saharan Africa	. . .	0.70	1.7	. . .	–0.12	–0.2	. . .	0.60	1.6
Former Soviet Union	. . .	0.20	0.7	. . .	–0.14	–0.4	. . .	—	0.6
Rest of world	. . .	0.20	0.7	. . .	–0.06	–0.1	. . .	0.14	0.6
Total developing	**12.5**	**0.21**	**. . .**	**–4.7**	**–0.09**	**. . .**	**8.0**	**0.13**	**. . .**
World	**91.1**	**0.31**	**. . .**	**9.4**	**0.03**	**. . .**	**99.7**	**0.34**	**. . .**

Source: Simulations with the GTAP model.

ducers, the largest benefits go to those countries with the higher tariff barriers, including many of the bigger countries, notably China and Brazil, and the Middle East and North Africa (where some countries have tariffs as high as 100 percent on wheat, vegetables, dairy products, meat, and beverages). By contrast, major producing regions such as the rest of Latin America and sub-Saharan Africa have smaller benefits, as local producers generally receive relatively lower levels of protection.

In the case of sub-Saharan Africa, a region that includes some of the world's poorest countries, the benefits from removal of agricultural support by all industrial countries are estimated to be somewhat greater than the benefits from removing agricultural support in all developing countries. This is because the level of agricultural protection applied by industrial countries to sub-Saharan Africa's exports is generally higher than that applied by developing countries, although the results from the GTAP model may overstate the gains, as the model does not take into account the trade preferences granted to the region by industrial countries. Also, when all developing countries liberalize, the terms of trade deteriorate for sub-Saharan Africa, offsetting some of the efficiency gains from liberalization. This occurs because developing countries export similar products, and liberalization by all these countries depresses the prices of their exports.[27] On the domestic side, countries in sub-Saharan Africa have made progress in liberalizing their trade regimes in the 1990s, with marketing boards largely abolished and tariff rates, while high, coming down (Subramanian and others, 2000). By contrast, sub-Saharan Africa's barriers in other sectors—particularly manufacturing—are much higher than in industrial countries (as is the case in many of the developing country regions; see Chapter III), so that this result generally does not hold outside of

[27]Anderson (2002) finds a similar result.

agriculture. That said, sub-Saharan Africa could enjoy larger gains from trade liberalization if it were accompanied by more general reforms to improve governance and reduce rent seeking.

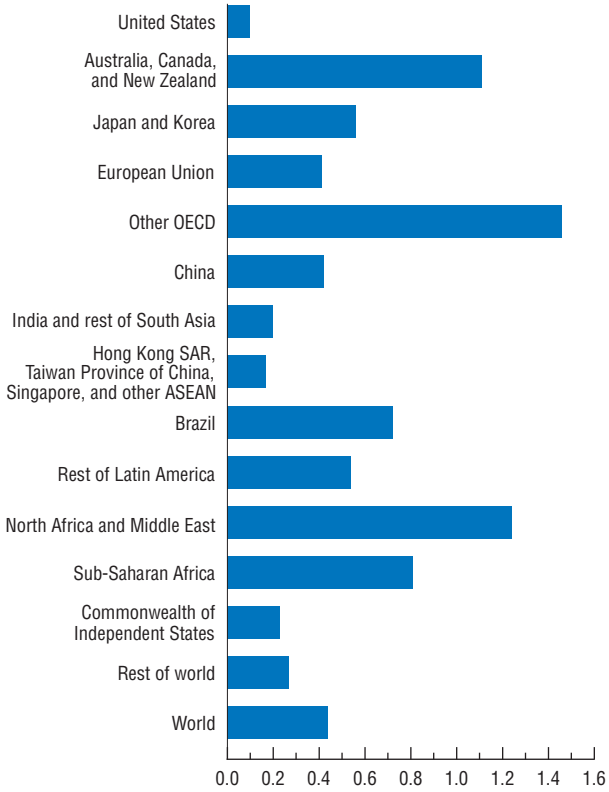
In common with numerous other studies, the results from the simulations show that multilateral liberalization generates larger gains than unilateral liberalization by the rich or poor countries alone (Figure 2.10). If all countries removed their agricultural protection, all regions of the world would gain $128 billion (Table 2.4), with about three-fourths of the gains accruing to industrial countries and one-fourth of the gains going to developing countries. The major agricultural exporters benefit the most (Australia, Canada, New Zealand, and much of Latin America and sub-Saharan Africa), largely because their terms of trade improve, along with those countries that have the most distorted domestic markets (the European Union, non-EU European countries, and North Africa and the Middle East), where the benefits to consumers from lower prices and a more efficient allocation of resources outweigh any terms-of-trade losses.

The discussion so far has focused on the aggregate impact of agricultural liberalization across many commodities and major regions. However, it is also of interest to look in more detail at the effects on individual countries and commodities. To do this, the author used a simpler partial equilibrium model to assess the short-run effects of industrial country liberalization on the terms of trade and on net trade flows for six commodities.[28] The main advantage of this approach is that it takes into account the different trade patterns of a wide range of coun-

Figure 2.10. Welfare Effects of Global Agricultural Liberalization

(Percent of GDP)

Every country benefits from global liberalization.



Sources: Simulations with GTAP model; and IMF staff estimates.

[28]The calculation uses gaps between domestic and world prices for selected commodities from the PSE/CSE database (OECD, 2002) and data on trade flows from FAO (2002) to estimate the impact of removing support on world prices, trade flows, and welfare of 150 countries across six commodities: one highly subsidized raw material (cotton) and a number of foods that are supported through both subsidies and tariffs (wheat, refined sugar, milk, rice, and beef). In contrast to GTAP, the calculation does not include the benefits from switching consumption between goods, moving resources between sectors, or changes in demand due to income effects.

tries, many of which cannot be captured in a general equilibrium model. These partial-equilibrium exercises assume that there are no spillover effects from liberalization of one commodity onto other commodities or countries and that there are no other distortions in place.[29]

In general, when industrial country support to a particular commodity is removed, there are large gains to a relatively small number of major exporters of the commodity, but small losses to developing countries that are food importers, in particular small island states that import a high proportion of their food. The possibility that net food-importing developing countries might be hurt by liberalization arose in the context of the Uruguay Round. To address this concern, ministers adopted an agreement whereby countries experiencing short-term difficulties financing food imports could be eligible for financial assistance from the IMF.[30] Figure 2.11 depicts examples where liberalization benefits many poor countries, as they are net exporters (cotton); hurts a number of poor countries, as they are net importers (wheat); and benefits a mix of rich and poor countries (beef). It should be noted, however, that because this analysis does not take account of substitution between goods, some of the losses may be overstated (for example, as the prices of some of the more expensive types of food rise, such as beef, the poorest consumers can be expected to switch to cheaper alternatives, such as chicken). In addition, it is possible for net-importing countries to benefit from liberalization as the rise in world prices could offset the effects of other distortions in the economy. For a discussion of this issue, see Anderson and Tyers (1993) and Anderson (1998).

For the six specific commodities, the analysis reveals the following points.

- Liberalization of cotton provides large benefits (of as much as 2 percent of exports) to many poor countries in west Africa and the CIS, as the world price rises by about 4 percent. The United States gains from removing its subsidies on cotton. Losses are universally small (less than ¼ percent of exports).
- Removal of support on rice, refined sugar, and wheat results in an increase in the world prices of these goods in the range of 2 to 8 percent. These are substantial net gains to a few countries, including some poor countries that are major exporters, as well as some relatively rich ones.[31] The major losers are mainly small islands and a number of countries in the Middle East and North Africa that are net importers and some who are currently enjoying preferential access to industrial country markets.
- Liberalization of beef raises the world price by about 7 percent, which would benefit a mix of rich and poor countries, but in this case, the major beneficiaries include a number of middle- to upper-income countries in Latin America (Argentina, Brazil, and Uruguay) while the losers from liberalization include a number of low-income countries.
- Milk (including the highly tradable milk powder) is subject to very high levels of support in industrial countries, so liberalization would lead to an increase in the world price of 23 percent. The gainers from liberalization are predominately middle- and high-income countries, while many other developing countries, including poor ones, generally lose.

Overall, this analysis suggests that while industrial country agricultural liberalization in aggregate is highly beneficial for developing countries in general, there would be gainers and losers within the latter group. That said, three underlying facts should be borne in mind. First, developing countries can also substantially improve on these outcomes by liberalizing their own

[29]These exercises also do not consider the implications of trade preferences.

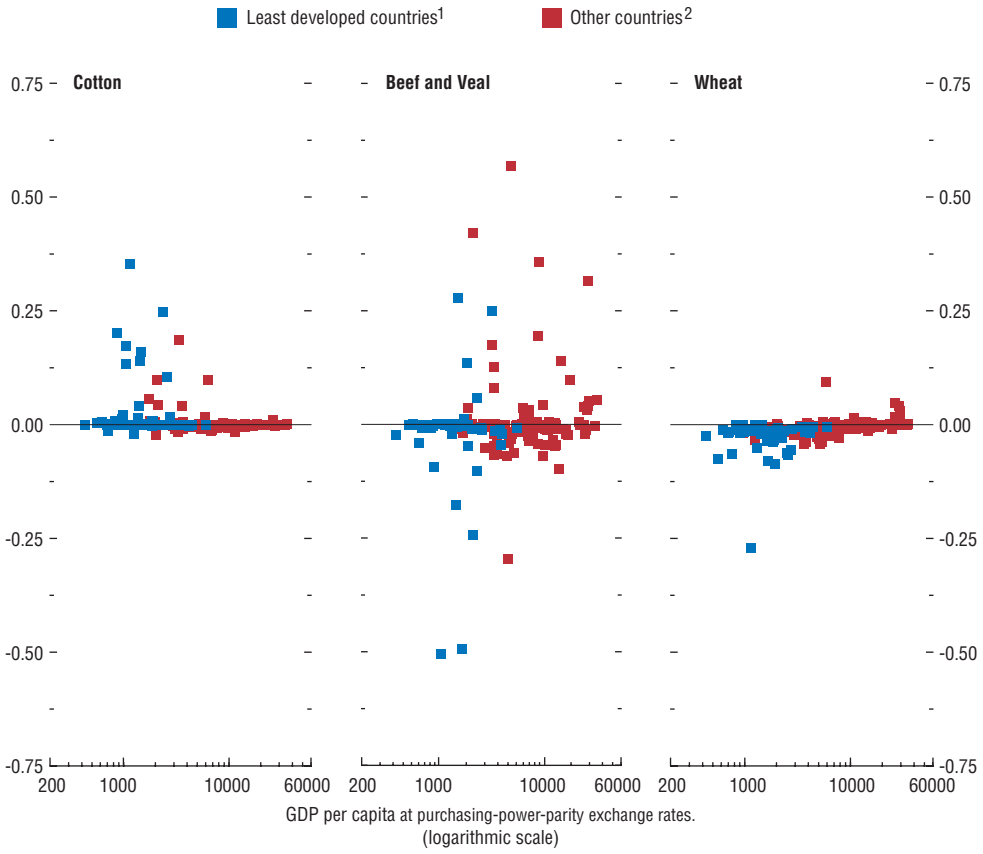
[30]Eiteljörge and Shiells (1995) examined the sizes of the losses that might be suffered by net food-importing countries as a result of the Uruguay Round and, in general, concluded that the increase in net food import costs would be relatively small.

[31]The net welfare effects from liberalization of sugar depends on how any quota rents (profits from the trade restriction) are allocated. For example, exporters who previously earned rents could lose from liberalization.

Figure 2.11. Welfare Effects of Agricultural Liberalization by Industrial Countries and Per Capita Income

(Change in welfare in percent of GDP)

In specific commodities, large gains for some countries are often offset by small but generalized losses.



Sources: Simulations with GTAP model; and IMF staff estimates.
[1]Least developed countries are defined in the Statistical Appendix, plus Armenia, Azerbaijan, Moldova, Mongolia, Georgia, Kyrgyz Republic, Tajikistan, and Uzbekistan.
[2]Includes advanced, developing and transition economies as defined in the Statistical Appendix.

regimes; second, any losses, particularly to poor countries, are small compared to the gains to industrial countries; and third, the households in the developing countries that are made worse off are generally relatively affluent city dwellers.

Conclusions and Policy Implications

Overall, the analysis above suggests that there are substantial gains to be had from industrial country agricultural liberalization, both for developed and developing countries, as countries reorient their production in a more efficient manner. Elimination of agricultural support, of course, will involve difficult political decisions, and likely some transitional costs to compensate the losers from reform. Given their wealth and the small size of their agricultural sectors, industrial countries are clearly best placed to take the lead in this area. Furthermore, a bold initiative by the rich countries would provide significant overall benefits to developing countries, as well as sending a strong signal about the importance and urgency of following suit with their own reforms.

The analysis also underscores that reforms are best achieved in a multilateral setting. Multilateral liberalization provides aggregate welfare gains to all regions—about $128 billion in total, with the dynamic gains (from higher investment and faster productivity growth) possibly several times larger—and, by eliminating distortions in a comprehensive manner, ensures a more efficient global agricultural sector. In addition, a multilateral agreement with well-defined rules may well be the best way of neutralizing the political economy constraints that have often successfully delayed or derailed beneficial reforms in individual countries in the past. This should be one of the key objectives of the Doha round of multilateral trade negotiations currently under way.

In the absence of a multilateral agreement, however, unilateral liberalization or appropriately designed regional arrangements can provide significant benefits. If only industrial countries were to liberalize, the aggregate gains would be about $100 billion, with over 90 percent of the gains going to these countries. Likewise, of the $24 billion in aggregate gains from developing country liberalization alone, $21 billion would accrue to developing countries themselves. In both cases, the dynamic gains would raise these estimates further and allow poor countries to accelerate the pace of their development. As demonstrated by these results, the main benefits of trade liberalization almost invariably accrue to those that undertake such reforms. While sub-Saharan Africa benefits relatively more from agricultural liberalization by industrial countries compared with liberalization by developing countries, this result does not hold more generally as relative protection is higher in other sectors. Therefore, countries should continue to work toward liberalizing their own markets. In this respect, the progress made in many major commodity-exporting countries in both the industrial and developing world, most notably New Zealand, is commendable. The recent proposals by both the European Commission and the United States for reform of agricultural support policies are steps in the right direction. However, the 2002 U.S. Farm Bill runs counter to this sentiment.

While removal of industrial country tariffs and subsidies benefits many countries in the developing world, including many poor commodity exporters, a few poor countries that are heavily dependent on imported foodstuffs may lose from the resulting increase in world prices. The value of these losses is small in absolute terms, as these countries are often small, as well as poor, and these losses are dwarfed by the benefits to the finances of industrial countries. As was recognized in the Uruguay Round, consideration should be given to providing assistance to these countries, possibly through building on initiatives to increase and better target aid at the recent summit in Monterrey. One obvious target for aid is agricultural research in developing countries, where relatively modest investments may well convert food-importing nations into food surplus economies.

Capital Structure and Corporate Performance Across Emerging Markets[32]

The 1997–98 Asian financial crisis brought into sharp relief the importance of healthy corporate balance sheets to macroeconomic performance.[33] Given evidence that the combination of high leverage, shorter debt maturities, and decreasing profitability played a key role in that crisis, the evolution of such balance sheet indicators has become a matter of increasing concern to policymakers in recent years. This has been the case particularly in emerging markets, where problems of corporate governance and transparency are often significant and, at times, have had a larger impact on currency and stock market developments than standard macroeconomic variables (Johnson and others, 2000).

Against this background, this essay looks at trends in corporate performance across 18 emerging market economies over the period 1992–2000.[34] In contrast with some previous work on the topic, this essay uses a more updated firm-level data set and considers a broader array of factors that may help explain main differences in corporate capital structure and performance across emerging markets. The two main issues to be addressed are the following.[35]

- How does corporate health vary across emerging market economies and regions? In particular, are east Asian firms financially more vulnerable than their emerging European and Latin American counterparts?
- How are differences in corporate performance related to institutional, macroeconomic, and sector- or firm-specific characteristics of countries or regions? And are these differences diminishing as a result of financial development and greater integration with the world economy?

Assessing Corporate Health in Emerging Markets

In assessing corporate health, three sets of indicators are considered. The first comprises standard leverage measures, such as the ratios of debt to assets, debt to net capital stock, and debt to the market value of equity.[36] Since a highly leveraged corporate sector faces greater bankruptcy risks and higher monitoring costs that induces managers to pass up on otherwise profitable investment projects (Myers, 1977), increasing the risk of deeper recessions and slower recoveries (Bernanke, 1983; Calomiris, Orphanides, and Sharpe, 1994; Sharpe, 1994), it is clearly important to monitor leverage carefully.

The second set of corporate health indicators encompasses the so-called "interest coverage" (the ratio of earnings before interest and taxes to interest expenses)—a yardstick to gauge the risk that the firm will not be able to honor debt payments—together with measures of the firm's liquidity position, such as the ratios of short-term debt to total debt and of liquid assets to total assets, which capture some of the roll-over risk associated with the accumulation of short-term

[32]The main authors of this essay are Luis Catão and Hali Edison; Bennett Sutton provided research assistance.

[33]The literature on the links between corporate leverage and the Asian financial crisis is vast, but see Radelet and Sachs (1998); Corsetti, Pesenti, and Roubini (1998); Krugman (1999); and Lane and others (1999) for some of the more representative views.

[34]The data set spans 3,538 publicly traded nonfinancial firms. Altogether these firms account for about 60 percent of the stock market capitalization for this set of countries according to the IFC yearbook. As is usual with firm-level data, the representativeness of the sample varies across countries and is lower in earlier years (1992–94). Coverage peaks at above 80 percent for Argentina, the Czech Republic, Hungary, Korea, and Mexico in 1999, from a low of 36 percent for South Africa and 8 percent for China. Averaging over 1992–2000, no country has less than 50 percent of its stock market capitalization represented in the data, with the exception of China, whose average representation is 20 percent.

[35]Data on nontraded companies are not available. Since the sample of firms under consideration represent traded companies, it is likely that there is a sampling bias. Specifically, it is expected that there is an upward bias in the assessment of corporate health, owing to the fact that nontraded firms tend to be smaller and less subject to monitoring.

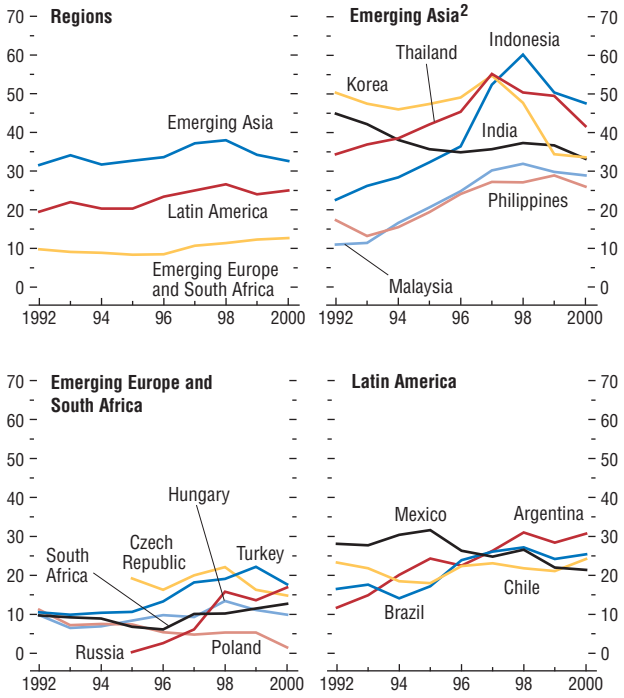
[36]The analysis does not distinguish between bank debt and bond debt. In these emerging markets, corporate bond markets are usually thin and hence most of the debt reported tends to be bank debt. Another important dimension of debt leverage in emerging markets is the size of foreign currency–denominated debt and the possibility of significant currency mismatches between assets and liabilities. Unfortunately, however, comprehensive data on the currency denomination of corporate debt is hard to obtain, so this aspect is omitted from the analysis below.

liabilities.[37] In light of the key role that short-term debt and liquidity may play in financial crises, it seems important to examine such indicators carefully. The third set of indicators considered includes two well-known measures of market valuation and profitability—namely, the ratio of market to book value of equity (a proxy for Tobin's *q*), and the rate of return on assets (ROA).[38]

As can be seen from Figure 2.12, corporate leverage in emerging market economies has, in general, been increasing since the early 1990s, although it declined modestly in emerging markets in Asia following the crisis. More strikingly, the level differs considerably across countries and across regions. While the precise extent of the increase depends on the specific measure considered, leverage is generally largest, and has increased fastest, in Asia, consistent with evidence that high corporate leverage was a major source of macroeconomic vulnerability behind the 1997–98 crisis. Within this, however, there are substantial intraregional differences. This is particularly the case in Asia, where three of the crisis countries (Indonesia, Korea, and Thailand) have been especially leveraged in comparison to other countries in the region, as well as to their eastern European and Latin American counterparts.[39] In

Figure 2.12. Total Debt to Total Assets[1]
(Percent)

There are substantial inter- and intraregional differences in corporate leverage.



Sources: Thomson Financial Worldscope database; and IMF staff estimates.
[1]Regional and country aggregates represent the median of all firms in the group, excluding outliers greater than plus/minus three standard deviations.
[2]China and Taiwan Province of China not shown.

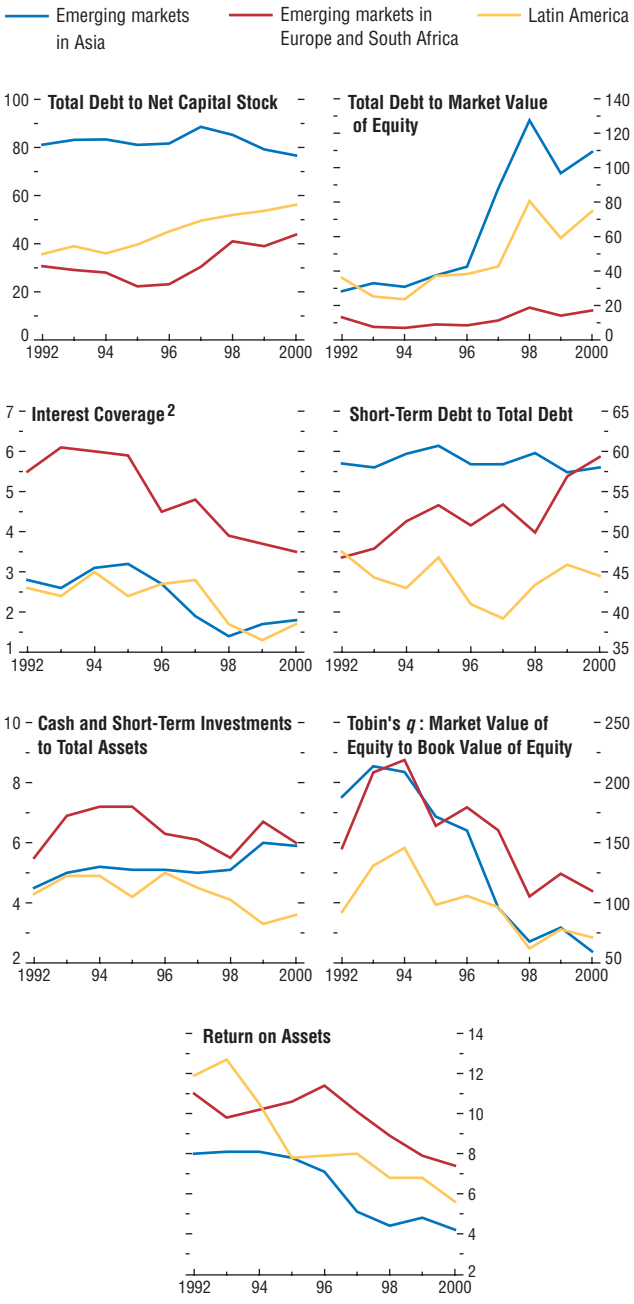
[37]As in other empirical studies, short-term debt and current liabilities are defined here as liabilities with a residual maturity of up to a year. Another widely used measure is the so-called "current ratio," defined as the ratio of current assets to current liabilities. It measures the firm's capacity to match short-term liabilities with short-term assets. For the sample of firms considered in this essay, the current ratio led to results similar to those of other measures and so was omitted to save space. For a more detailed discussion of the pros and cons of these various measures of corporate health, see Brealey and Myers (1998).

[38]Other measures of valuations, such as the price to earnings ratio, the dividend payout, and the rate of return on investment (ROI), were also considered in the background analysis to this essay but the respective trends were very similar to those of the other two measures and so are not reported to save space.

[39]Leverage in east Asia has also been higher than in advanced countries on average, especially if one excludes Japan (Claessens and Djankov, 2000; Begum and Schumacher, 2001). A useful benchmark is the unweighted average of debt to asset ratios in the G-7 countries, which stood at some 18 percent in 1998–99

Figure 2.13. Regional Indicators of Corporate Fragility[1]
(Percent)

Corporate financial indicators vary significantly across regions.



Sources: Thomson Financial Worldscope database; and IMF staff estimates.
[1]Regional aggregates represent the median of all firms in the group, excluding outliers greater than plus/minus three standard deviations.
[2]Interest coverage is presented here as a simple ratio.

comparison with Asia, intraregional differences in emerging markets in Europe and Latin America are much smaller, even though leverage has increased rapidly in some of these countries as well, notably in Argentina (including before the recent crisis) and Turkey.

Turning to the second set of corporate health indicators, Asian corporates have a higher ratio of short-term debt to total debt than do Latin American firms (Figure 2.13), although this is partly offset by a higher ratio of cash and near cash to assets. Interest coverage is very similar in the two regions. The situation in emerging markets in Europe is rather different; corporates there have a far higher interest coverage, a somewhat higher share of liquid assets, and—apart from Turkey—a lower short-term debt ratio.

Market valuation and profitability have declined since the mid-1990s in all regions, with the decline being steeper among Asian emerging market economies. But in contrast to leverage—which still reveals considerable differences across emerging markets, as noted above—there has been some convergence in market valuation and profitability indicators, both inter- and intraregion. This is consistent with the global trend toward that greater capital market integration, and the declining importance of country-specific factors in stock pricing (Baca, Garbe, and Weiss, 2000; Brooks and Catão, 2000).

In sum, the analysis above suggests that the various leverage, solvency, liquidity, and profitability indicators are generally weaker in Asian corporates than in their Latin American and European emerging market counterparts. Even though corporate leverage has declined from its peak during the 1997–98 crisis, reliance on debt and particularly on short-term debt is distinctively high in east Asia relative to other emerging

based on the same (Worldscope) data source. Using debt to market capitalization ratios as a benchmark, the contrast is even greater because of the sharp increase in equity prices in G-7 countries from the mid-1990s. Moreover, in comparison with east Asian economies as well as with other emerging market economies, leverage in advanced countries has been quite stable over time (see Begum and Schumacher, 2001).

markets. Regarding Latin America, while corporates in the region are generally less leveraged than in Asia (and also than in advanced countries for that matter), debt to equity and debt to capital stock ratios have increased considerably in recent years. At the same time, both profitability and interest coverage have declined, reflecting both the cyclical slowdown in earnings and rising borrowing costs faced by the region since 1997. In the cases of eastern Europe (excluding Turkey) and South Africa, both trends have been considerably milder, so overall corporate health in these countries appears somewhat better.

That said, two important considerations should be born in mind when deriving implications from this data to the degree of *macroeconomic* vulnerability of the different countries/regions. One is that financial vulnerability is also a function of macroeconomic circumstances that are heavily influenced by government policies. For instance, the fact that the average publicly traded Latin American corporation relies less on debt—and particularly on short-term debt—than its Asian counterpart possibly reflects a more volatile macroeconomic and policy environment that makes leverage riskier. The other consideration is that the observed international differences in leverage and liquidity are also likely to be a function of institutions, industrial specialization, and average firm size, factors that may increase the desirability of higher leverage and shorter debt maturities in some circumstances. This point is elaborated further below.

What Explains Differences in Corporate Vulnerabilities Across Countries?

From an analytical as well as from a policy perspective, one might expect differences in firms' financing structures to reflect a variety of factors, including the institutional framework, property rights, and governance issues; the macroeconomic setting, including overall macroeconomic performance and the degree of financial development and integration with the world economy; and sector- or firm-specific factors, such as industrial specialization and average firm size.[40] To assess the relative importance of these factors, the authors have undertaken an econometric analysis relating representative measures from each of the performance categories described above to the various institutional, macroeconomic, and sector-/firm-specific control variables (Box 2.3).

Institutional factors

One of the key determinants of corporate financing choices is the existence of "agency costs," specifically the ability of investors to ensure that management will act in their best interests (Jensen and Meckling, 1976; Myers, 1977). The more difficult this is, the greater will be the cost of raising finance particularly through equity offerings.[41] Recent studies find that the magnitude of agency costs depends importantly on two aspects of a country's institutional framework (La Porta and others, 1997, 1998). The first aspect is the origin of a country's legal system, and in particular whether it is based on civil law versus common law. In general, common law systems feature stricter enforcement of property rights and investors' contracts. Correspondingly, agency costs are expected to be lower than in civil law–based countries, leading to lower leverage and short-term debt ratios. Second, the quality of governance, including corruption, is an important factor.[42] All else being constant, a higher level of

[40]Firms' capital structure may also depend on the tax advantages of debt and equity financing. However, Demirgüç-Kunt and Maksimovic (1999) suggest that the implicit of different tax systems for the composition of debt and debt maturity are not clear-cut.

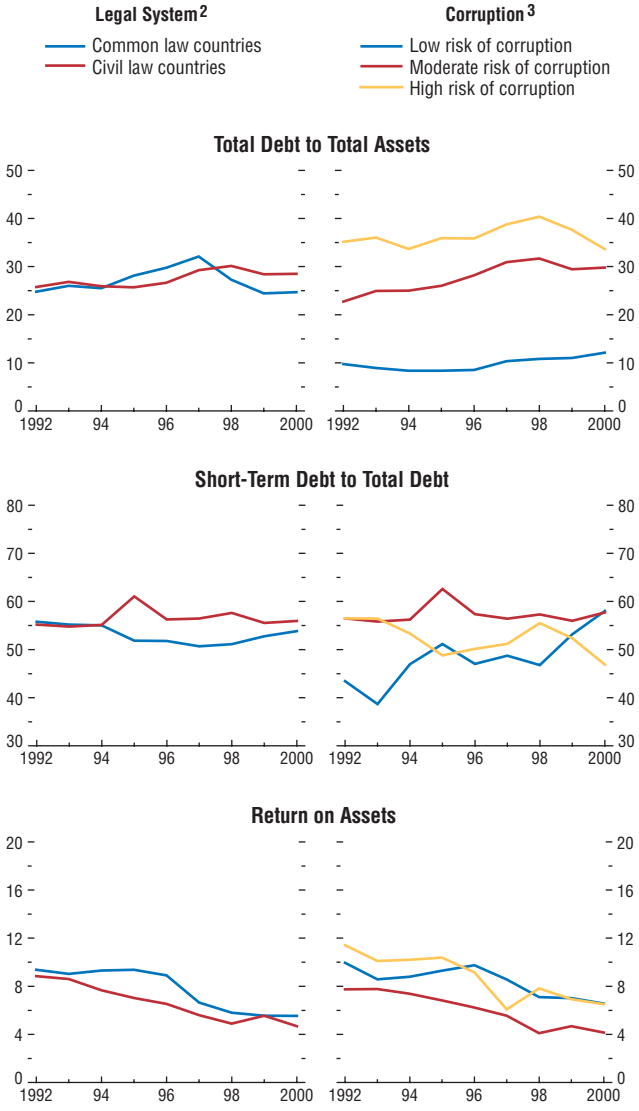
[41]The recent concerns about corporate governance in the United States, and their effects on the stock market, provide a vivid illustration of this point.

[42]The second institutional factor is the extent of corruption in the public administration. A working definition of corruption put forward by the International Country Risk Guide (ICRG) is based, among other things, on the length of time a government remains in power. An alternative corruption variable developed by the World Bank was also considered and it pointed to a similar ranking of countries.

Figure 2.14. Institutional Factors[1]

(Percent)

Institutional factors play an important role in firms' financing patterns. Firms in common law countries and firms in countries with good governance tend to have lower leverage, significantly lower short-term debt ratios, and moderately higher return on assets.



Sources: International Country Risk Guide (ICRG); La Porta and others (1998); Thomson Finanical Worldscope database; and IMF staff estimates.

[1]Group aggregates represent the median of all firms in the group, excluding outliers greater than plus/minus three standard deviations.

[2]Legal system is defined using La Porta and others (1998). Common law countries include India, Malaysia, South Africa, and Thailand. Civil law countries include Argentina, Brazil, Chile, China, Czech Republic, Hungary, Indonesia, Korea, Mexico, the Philippines, Poland, Russia, Turkey, and Taiwan Province of China.

[3]Corruption is defined using the ICRG definition, which rates the risks of corruption based on the length of time that a government has been in power. The high risk countries include Indonesia, India, Russia, Thailand, and Turkey. The moderate group includes Argentina, Brazil, Chile, China, Korea, Malaysia, Mexico, the Philippines, and Taiwan Province of China. The low risk group includes Czech Republic, Hungary, Poland, and South Africa.

Table 2.6. Institutional Factors and Corporate Vulnerabilities

(Percentage point change from baseline)

	Legal System: Move from Civil to Common	Corruption: Move from High to Low
Debt/total assets	–1.3	–17.1
Short-term debt/total debt	–6.7	–1.4
Return on assets	1.4	1.7

Source: IMF staff estimates.

Note: The baseline is constructed to represent a hypothetical firm with the following characteristics: a small firm, in the general industry sector, in a country with low financial development, low degree of integration, high level of corruption, and a civil-law legal system.

corruption should be expected to result in higher agency costs and thus in a more intensive use of instruments—such as debt and short-term debt—that facilitate outside monitoring and control of managerial performance. Evidence provided in Figure 2.14 is broadly consistent with these associations.

The authors' econometric analysis corroborates the findings by La Porta and others that institutional factors play an important role in firms' financing patterns once one controls for the effects of other variables. Firms in countries with common law systems have modestly lower leverage, significantly lower short-term debt ratios, and a higher return on assets (Table 2.6). Similar results were found for governance, particularly with respect to leverage and the return on assets.

Macroeconomic factors

Corporate financing choices appear to be significantly affected by the level of a country's financial development (Demirgüç-Kunt and Maksimovic, 1999; Levine, 2001). Countries with more developed financial sectors offer more opportunities for firms to tap outside finance, including equity offerings and longer-term debt. Consequently, leverage is likely to be lower, while debt maturity and interest coverage should be higher.[43] Regarding profitability, as rates of

[43]It is important to acknowledge, however, that the impact of higher financial development on the debt to equity ratio is not entirely clear-cut (Harris and Raviv,

Table 2.7. Macroeconomic Factors and Corporate Vulnerabilities
(Percentage point change from baseline)

	Financial Development		Openness
	Move from low to high	Move from moderate to high	Move from closed to open
Debt/total assets	7.5	–1.1	–8.5
Short-term debt/total debt	–6.3	10.2	–4.4
Return on assets	–0.8	–0.6	0.2

Source: IMF staff estimates.
Note: The baseline is constructed to represent a hypothetical firm with the following characteristics: a small firm, in the general industry sector, in a country with low financial development, low degree of integration, high level of corruption, and a civil-law legal system.

return on capital tend to be higher in capital-scarce countries, which are usually the ones with lower levels of financial development, the return on assets should be lower in countries with high levels of financial development. Evidence provided in Figure 2.15 is broadly consistent with these associations.[44]

The authors' econometric analysis confirms that the level of financial development matters, as other studies have also found (Levine, 2001). However, there is evidence that the relationship is nonlinear (Table 2.7). Specifically, the following is found.

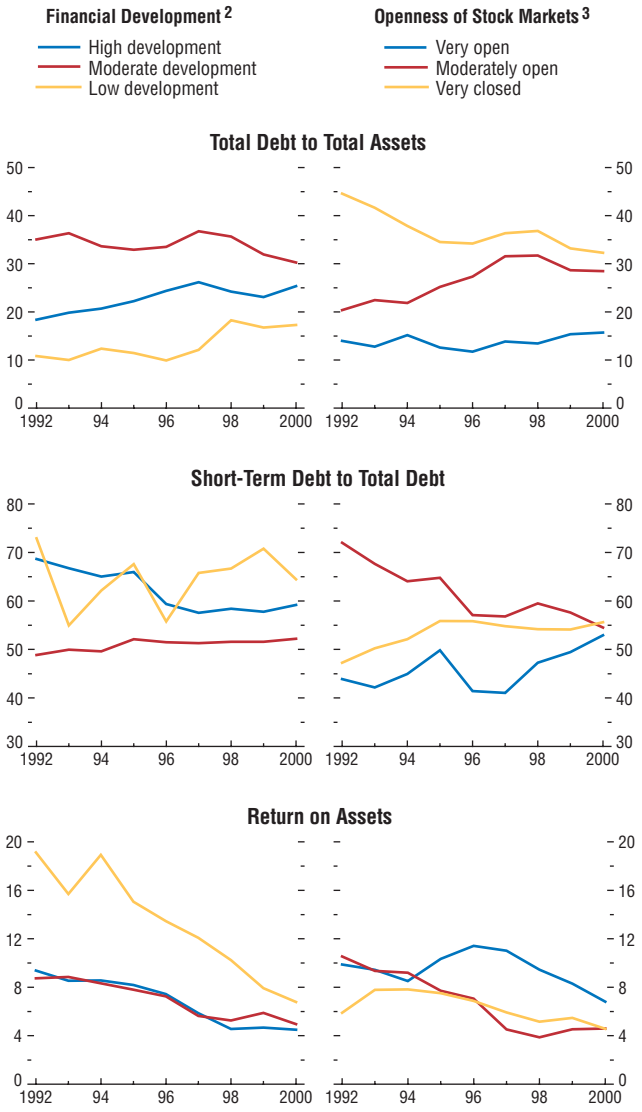
- *Leverage increases as countries become moderately financially developed, but then declines.* Firms in more financially developed economies tend to have slightly lower leverage than those in

1991; Rajan and Zingales, 1995). On the one hand, higher market capitalization facilitates equity issuance, thus helping reduce leverage. On the other hand, since countries with highly developed stock markets also tend to have more developed debt markets, long-term debt is cheaper so that firms may prefer long-term debt to equity. Such a preference for debt relative to equity is what the "pecking order" theory of investment financing would predict (Myers, 1984; Fazzari, Hubbard, and Petersen, 1988). Ultimately, which effect predominates will depend on firms' capacity to substitute equity for short-term debt and is largely an empirical issue.

[44]Financial development is measured by the ratio of private credit plus stock market capitalization to GDP, and dividing the sample into three categories, where "high financial development" accounts for the top 25 percent and "low financial development" for the bottom 25 percent of countries.

Figure 2.15. Macroeconomic Factors[1]
(Percent)

Corporate financing choices are significantly affected by the degree of financial development and the degree of integration with world capital markets.



Sources: Edison and Warnock (2001); IMF, *International Financial Statistics;* Standard & Poors Emerging Market Database; and Thomson Financial Worldscope database.
[1]Group aggregates represent the median of all firms in the group, excluding outliers greater than plus/minus three standard deviations.
[2]Financial development is defined using Levine (2001) as the sum of total private credit to GDP and market capitalization to GDP ratios. Low development include Argentina, Hungary, Poland, Russia, and Turkey. The medium group includes Brazil, China, Czech Republic, India, Indonesia, Korea, Mexico, and the Philippines. The high development group includes Chile, Malaysia, South Africa, Taiwan Province of China, and Thailand.
[3]Openness is defined using Edison and Warnock (2001) as one minus the percent of shares that may not be purchased by foreign investors as captured in the ratio of IFC Investable Index to IFC Global Index. The very open category includes Argentina, Mexico, Poland, South Africa, and Turkey. The moderate group includes Brazil, Chile, Czech Republic, Hungary, Indonesia, Malaysia, the Philippines, Russia, and Thailand. The very closed group includes China, India, Korea, and Taiwan Province of China.

Box 2.3. Cross-Country Determinants of Capital Structure

In light of the growing interest in corporate vulnerabilities, a thriving literature has developed to explain cross-country differences in debt leverage and other indicators of firms' capital structure. An earlier but still influential view is that legal systems and differences associated with the enforcement of property rights have a key bearing on countries' financial structure and on the way risk is shared between lenders and borrowers, thus helping shape the financial structure of domestic firms (La Porta and others, 1997, 1998). More recent work, however, suggests that firms can find ways to bypass the deficiencies of a country's legal system and provide investors with firmer contractual guarantees—for instance through the issuing of American Depository Receipts (ADRs) or other evidence of sound accounting practices (Mitton, 2002). Moreover, a variety of other factors not fully captured by differences in legal systems and property rights enforcement have also been found to be important, including the stage of a country's financial development, its macroeconomic performance, and average firm size (Demirgüç-Kunt and Maksimovic, 1999; Claessens and Djankov, 2000). Thus, it seems important to consider a broad set of factors when trying to explain cross-country differences in corporate vulnerabilities.

In light of these considerations, the authors undertook an econometric analysis of the determinants of cross-country differences in firms' capital structure, taking into account a broader set of explanatory variables and a more updated data set than previous studies. As usual in the literature, corporate capital structure is defined in terms of four standard indicators—the ratios of debt to the *market* value of equity, debt to the *book* value of assets, short-term debt to total debt, and the rate of return on assets. Using firm-level data for 18 emerging market economies spanning 3,538 nonfinancial firms over 1992–2000, the authors' regression analysis includes the various institutional, macroeconomic, and sector- and firm-specific factors featured in the above-mentioned studies, plus two other factors that have been somewhat overlooked in the literature.

The first additional factor is sectoral specialization—that is, the fact that some emerging market economies specialize in sectors that have a distinctive capital structure owing to technological or other structural factors; this is the case, for instance, of the IT firms. Accordingly, an appropriate sectoral breakdown based on the FTSE industrial classification is used to bring to bear those differences in sectoral specialization across economies.

The second additional factor is openness to world capital markets. In this connection, the authors' analysis uses a new measure of openness to world capital markets that takes into account country-specific restrictions on purchase of equities (see the main text). To the extent that such restrictions differ significantly across countries and sectors and influence firms' capacity to tap external finance, one would expect them to be reflected in capital structure.

The results of the respective OLS regressions, reported in the table, are discussed in detail in the main text. All regressions were estimated using time dummies (since the focus is on cross-sectional variations) and the standard White heteroscedasticity correction procedure to produce robust standard errors. As indicated by the R^2 statistics at the bottom of the table, all regressions have a fit that is low relative to those usually obtained with macro data but reasonable for such a large international cross section of individual firm data. More importantly, nearly all the *t*-statistics underneath each coefficient indicate that the respective explanatory variables are statistically significant, with signs that are generally consistent with the theoretical priors (see the main text for specifics).[1]

Overall, the results clearly support the view that institutions matter (as emphasized by La Porta and others) together with sectoral specialization and firm size. But they also highlight the importance of two other sets of factors. First, financial crises tend to significantly increase debt leverage, over and above their effects on the respective countries'

Note: The main authors of this box are Luis Catão and Hali Edison.

[1]As can also be seen from the table, the marginal effects of the various control variables on firms' capital structure vary considerably between the two leverage equations (debt to equity and debt to asset ratios). This is to be expected, since the much higher coefficients and lowered R^2 obtained for the debt to market value of equity regression reflect the fact that, unlike the debt to asset ratio (which is typically bound between zero and one), debt to equity ratios can vary widely (between zero and very large positive numbers) and tend to be far more volatile, as the market value of equity fluctuates with stock prices.

Summary of Empirical Results, 1992–2000[1]

Explanatory Variables	Dependent Variables: Debt to equity	Debt to assets	Short-term debt to total debt	Return on assets
Institutions				
Legal system[2]				
Civil law	33.36	1.28	6.72	–1.36
	(3.33)	(2.47)	(9.69)	(–5.03)
Corruption[3]				
High	101.71	17.14	1.42	–1.74
	(7.70)	(30.90)	(1.40)	(–3.49)
Moderate	113.60	11.08	5.32	–3.85
	(7.00)	(20.99)	(5.34)	(–8.26)
Macroeconomic factors				
Financial development[4]				
Low	–38.39	–7.47	6.34	0.82
	(–2.52)	(–10.50)	(5.15)	(1.38)
Moderate	116.07	1.14	–10.18	0.61
	(8.01)	(2.80)	(–16.62)	(2.13)
Openness[5]				
Low	124.11	8.48	4.41	–0.20
	(7.17)	(15.96)	(4.83)	(–0.40)
Moderate	62.83	2.74	10.87	–0.16
	(5.02)	(6.05)	(12.70)	(–0.36)
Real GDP growth	–16.43	–0.70	–0.06	0.41
	(–11.27)	(–13.92)	(–0.90)	(10.22)
Firm factors				
Sector affiliation[6]				
Utilities	–97.95	–6.53	–19.81	1.07
	(–1.57)	(–7.30)	(–15.02)	(1.08)
Information	–94.92	–4.33	–5.86	4.03
Technology	(–4.85)	(–5.42)	(–4.99)	(3.45)
Size[7]				
Small	273.81	6.23	15.41	–7.19
	(13.45)	(11.17)	(19.53)	(–10.33)
Moderate/small	135.35	4.44	13.89	–4.69
	(5.67)	(9.05)	(19.36)	(–9.34)
Moderate	87.20	2.54	11.97	–3.64
	(5.87)	(5.64)	(17.43)	(–7.96)
Moderate/large	46.70	1.55	7.90	–1.85
	(4.80)	(3.54)	(11.67)	(–4.37)
Net capital stock to total assets	1.92	0.15	–0.32	–0.07
	(6.38)	(18.78)	(–28.91)	(–10.87)
Time effects[8]				
1993	–24.44	1.50	–0.97	3.95
	(–2.70)	(2.16)	(–0.84)	(2.04)
1994	–26.47	1.58	–1.04	–1.10
	(–3.01)	(2.33)	(–0.92)	(–0.81)
1995	–11.13	1.20	–0.07	–0.62
	(–1.32)	(1.85)	(–0.07)	(–0.51)
1996	3.71	1.80	–1.95	–0.05
	(0.45)	(2.82)	(–1.84)	(–0.05)
1997	156.49	4.07	–1.69	–1.80
	(12.09)	(6.14)	(–1.61)	(–1.42)
1998	116.41	1.44	–1.75	–1.34
	(8.98)	(2.15)	(–1.56)	(–0.95)
1999	132.91	3.30	–2.17	–1.39
	(9.39)	(4.82)	(–2.09)	(–1.08)
2000	266.20	4.70	–1.27	–2.20
	(8.52)	(6.46)	(–1.21)	(–1.73)
Memorandum				
R^2	0.062	0.178	0.170	0.208
Number of observations	18,205	19,441	18,189	16,432

Sources: Edison and Warnock (2001); La Porta and others (1997, 1998); International Finance Corporation; IMF, *International Financial Statistics;* PRS Group; Thomson Financial Worldscope database; and IMF staff calculations.

[1]Countries include Argentina, Brazil, Chile, China, Czech Republic, Hungary, India, Indonesia, Korea, Malaysia, Mexico, the Philippines, Poland, Russia, South Africa, Taiwan Province of China, Thailand, and Turkey. Dependent variable outliers greater than plus/minus three standard deviations removed except for debt to equity for which outliers greater and plus/minus two standard deviations were removed.

[2]Dummy variables based on data from La Porta and others (1997, 1998) results are relative to common law countries.

[3]Dummy variables based on data from PRS Group, results are relative to low corruption countries.

[4]Financial development is measured as the sum of a country's private credit and national market capitalization to GDP. Dummy variables are based on three groups of countries: the 25 percent of countries with the lowest average financial development ratio, the middle 50 percent, and the top 25 percent. Results are relative to the top 25 percent.

[5]Dummy variables based on data from Edison and Warnock (2001); results are relative to countries that are very open to foreign investment.

[6]Dummy variable; results are relative to firms in the general industries sector.

[7]Dummy variable; results are relative to 20 percent of firms that have the highest average market capitalization over the period 1992–2000.

[8]Dummy variable; results are relative to 1992.

macroeconomic performance. This can be seen from the table, which shows that the time dummies for the period 1997 onward are both positive and highly statistically significant, despite the inclusion of a key macroeconomic performance variable (real GDP growth) in the regressions. Second, openness and financial development do play a major role in the determination of leverage and debt maturity structure, over and above the effects of legal systems and corruption.

moderately developed economies, but firms in economies that are the least financially developed tend to be the least leveraged, presumably reflecting borrowing constraints that force these firms to build equity through retained earnings. Such an inverted U–shaped response of leverage to financial development may reflect the end of financial repression, which allows firms to resort more widely to bank credit in the transition stage from low to moderate levels of financial development, which is then typically followed by more open access to equity markets (in the transition from moderate to high levels of financial development).

- *Differences in short-term debt ratios also vary by level of financial development.* As expected, short-term debt ratios are the highest in financially less developed economies, reflecting the fact that long-term debt instruments require deeper and more sophisticated credit markets. But corporates in countries at intermediate levels of financial development (such as some economies in Latin America) display lower short-term debt ratios than corporates in financially more advanced economies, apparently owing to more intensive use of longer-term bank credit.
- *Rates of return on assets are higher in countries with moderate levels of financial development relative to more financially developed economies,* consistent with the theoretical considerations discussed above.

Corporate financing choices are also likely to be significantly affected by the degree of integration with world capital markets, as such integration helps diversify firms' financing choices (Schmukler and Vesperoni, 2001). Openness is measured by the restrictions on foreign ownership of domestic equity, using the Edison-Warnock measure.[45] It is anticipated that openness will generally be associated with lower corporate vulnerability and lower returns on assets (Figure 2.15).

The empirical results in Table 2.7 for openness are clear-cut and indicate the following.

- With greater access to longer-term external borrowing and equity financing, *firms in economies that are more open to foreign investors tend to be less leveraged.* For instance, the move from relatively closed economy to relatively open economy would lead to a large decline in leverage, as expected.
- As also expected, *more highly open economies tend to display lower short-term debt ratios,* as a move from closed to open is associated with a decline in this ratio. Regarding the return on assets, the impact is positive but very small and is statistically insignificant (see Box 2.3).

Sector- and firm-specific factors

Although sectoral specialization has been largely overlooked in the recent literature on capital structure, it clearly has an important role. For instance, utilities and basic industries that have heavily capital-intensive technologies, slow but stable sales growth, and long maturity assets rely more on long-term debt, as opposed to short-term debt or equity financing (Morris, 1976; Myers, 1977; Barclay and Smith, 1995). In contrast, IT firms, which have high but less stable demand growth and low ratios of physical capital to assets, are probably better off financing themselves through retained earnings or equity. Thus, countries where the corporate sector is dominated by utility and basic industries will tend to display higher ratios of debt to the market capitalization, a lower rate of short-term debt to equity, and lower profitability, whereas countries with a larger high-tech sector are likely to display a lower rate of tangible capital to assets, higher

[45]Specifically, the Edison-Warnock index is constructed as one minus the ratio of the IFC investable index to the IFC global index, where a score of zero means that all shares may be purchased by foreigners so that the market can be considered as completely open, and a score of one implies that the market is completely closed to foreigners. For details, see Edison and Warnock (2001). Using this information, the sample is divided into three subgroups, where the "very open" represents the top 25 percent and "very closed," the bottom 25 percent.

Table 2.8. Sector- and Firm-Specific Factors and Corporate Vulnerabilities
(Percentage point change from baseline)

	Sector		Size	
	Move from general industry to IT	Move from general industry to utilities	Move from small to moderate	Move from moderate to large
Debt/total assets	−4.3	−6.5	−3.7	−2.5
Short-term debt/total debt	−5.9	−19.8	−3.4	−12.0
Return on assets	4.0	1.1	3.5	3.6

Source: IMF staff estimates.
Note: The baseline is constructed to represent a hypothetical firm with the following characteristics: a small firm, in the general industry sector, in a country with low financial development, low degree of integration, high level of corruption, and a civil-law legal system.

stock market capitalization, and higher return on assets.

The empirical evidence confirms some of these prior expectations (Table 2.8). In particular:

- IT firms have lower leverage and a much higher return on assets; and
- utilities have much lower short-term debt ratios, slightly higher returns on assets than general industry (likely reflecting the effects of the various privatization programs in the 1990s on the efficiency of formerly state-owned large firms in the sector), and significantly lower returns than IT.

Correspondingly, corporate vulnerability indicators may be importantly affected by a country's or region's industrial structure. While utility firms account for a substantial share of stock market capitalization in nearly all countries, their weight is clearly highest in Latin America and emerging markets in Europe (Table 2.9); the same applies to resource-based industries.[46] In contrast, the weight of the IT sector is substantially higher in Asia. Asia also has a bigger share of cyclical consumer goods and general industries, which comprise technology-intensive non-IT electronics.

A second important factor is firm size.[47] Since larger firms tend to be financially more resilient, they are less likely to go bankrupt, and consequently can manage higher levels of leverage. On the other hand, however, agency problems are often less binding in larger and well-established firms, which works in the opposition direction (as discussed above). In addition, the evidence for G-7 countries is mixed, which is consistent with the theoretical ambiguities of these effects (Rajan and Zingales, 1995). Table 2.8 shows that for emerging market economies the results are more clear-cut.

- *Smaller emerging market firms tend to be more highly leveraged.* As the size of the firm increases, the ratio of debt to total assets drops, which is consistent with the hypothesis that small firms have more restricted access to equity markets. Smaller firms also tend to rely proportionately more on short-term debt than larger firms.
- *Smaller emerging market firms tend to have lower returns on assets, relative to larger firms.* While this result appears to be at variance with Fama and French's (1992) well-known finding of higher excess returns for small capitalized firms in the United States, it is consistent with more recent evidence for several countries (Lamont, Polk, and Saa-Requejo, 1997; Brooks and Catão, 2000).

Looking across regions, the average firm size Latin America is far higher than elsewhere (Table 2.10), regardless of whether size is measured by average market capitalization or the book value of assets. This may partly explain the generally lower leverage and reduced reliance on short-term debt observed for Latin American firms relative to Asian firms, since large resource

[46]The figure for Mexico should not be considered as representative, in that the large oil company PEMEX is not included in the sample since its shares are not publicly traded.

[47]Firm size is measured as the ratio of its stock market capitalization to global emerging market capitalization.

Table 2.9. Sectoral Composition by Countries
(Percent of country/regional stock market capitalization)[1]

	Basic Industries	Construction	Cyclical Consumer Goods	General Industries	IT Technology	Other Consumer Goods	Resources	Services	Utilities
Emerging markets in Asia									
China	10.5	6.4	9.6	16.3	2.9	1.8	25.2	17.2	10.3
Indonesia	7.4	6.4	31.6	5.2	0.2	15.5	1.7	11.7	20.3
India	10.8	1.4	10.2	5.4	23.9	20.8	11.5	7.3	8.7
Korea	4.1	2.2	8.7	25.3	6.9	3.7	2.5	5.1	41.4
Malaysia	2.9	7.9	6.9	13.5	2.9	7.5	1.3	21.3	35.8
Philippines	1.1	2.3	0.3	21.7	1.4	22.1	3.5	13.7	34.0
Thailand	6.9	14.2	1.6	1.4	11.6	4.7	8.1	20.6	31.0
Taiwan	14.1	2.9	5.8	11.0	58.2	1.8	—	5.0	1.2
Average	**7.2**	**5.5**	**9.3**	**12.5**	**13.5**	**9.7**	**6.7**	**12.7**	**22.9**
Emerging markets in Europe and South Africa									
Czech Republic	2.5	2.5	4.6	0.4	0.1	2.1	4.6	11.4	71.9
Hungary	7.1	0.3	1.7	0.5	0.5	13.9	15.5	4.1	56.5
Poland	9.3	2.2	2.1	6.0	6.0	4.5	12.7	7.1	50.0
Russia	4.0	—	0.2	—	—	0.1	74.4	0.2	21.2
Turkey	12.9	7.7	19.7	12.5	1.7	2.0	19.4	24.3	—
South Africa	33.2	0.9	2.6	8.4	4.8	3.5	8.2	30.9	7.6
Average	**11.5**	**2.2**	**5.1**	**4.6**	**2.2**	**4.3**	**22.5**	**13.0**	**34.5**
Latin America									
Argentina	6.3	3.9	3.0	10.8	—	1.9	35.8	0.8	37.6
Brazil	10.7	1.0	1.6	4.8	0.8	2.8	23.8	12.7	41.7
Chile	8.0	3.8	1.4	1.8	—	12.1	11.2	18.3	43.5
Mexico	6.9	11.2	0.1	6.0	—	15.3	—	25.7	34.8
Average	**8.0**	**5.0**	**1.5**	**5.9**	**0.2**	**8.0**	**17.7**	**14.4**	**39.4**

Sources: Thomson Financial Worldscope database; and IMF staff estimates.
[1]1999–2000 averages. Rows total 100 percent.

and utility firms in Latin America are probably better equipped financially to issue equities and borrow long term from international capital markets. Likewise, the size factor may also account for the marked differences in short-term indebtedness between Latin America and eastern European/South African firms, although the fact that the latter display lower leverage than the former suggests that other factors, besides size, are also at play.

Conclusions and Policy Implications

Trends in corporate health indicators across emerging markets point to the following "stylized facts." First, while leverage has generally increased through the 1990s, some important cross-country differences remain, with east Asian corporates appearing particularly highly leveraged, even though leverage in the region has declined somewhat since its peak during the 1997/98 Asian crisis. Second, reliance on short-term debt has also been highest (and relatively stable) in Asia, and lowest in Latin America, even though corporate debt maturity in some Latin American countries has been shortening in recent years. Third, interest coverage, profitability, and market valuation indicators have trended downward in all emerging markets. In particular, the ratio of market to book value of equity (a proxy for Tobin's q) has more than halved since the mid-1990s to levels below unity, thus reducing vulnerability to sharp corrections in market valuations, but also pointing to a expected slowdown in earnings growth in the period ahead.

As described above, these trends and cross-country differences in corporate indicators reflect a variety of country-specific institutional and macroeconomic factors, as well as industrial

Table 2.10. Measures of Sample Size, 1999[1]

Country	Total Market Capitalization	Total Assets	Number of Firms	Average Market Capitalization	Average Assets
Emerging markets in Asia					
China	26,984	58,564	115	234.6	509.3
India	85,464	121,519	294	290.7	413.3
Indonesia	36,653	46,556	119	308.0	391.2
Korea	259,022	575,441	573	452.0	1,004.3
Malaysia	81,220	135,156	322	252.2	419.7
Philippines	21,833	36,663	74	295.0	495.4
Taiwan	284,506	182,543	217	1,311.1	841.2
Thailand	33,781	60,963	185	182.6	329.5
Total	**829,462**	**1,217,405**	**1,899**	**436.8**	**641.1**
Emerging markets in Europe and South Africa					
Czech Republic	11,480	24,529	55	208.7	446.0
Hungary	14,112	10,109	38	371.4	266.0
Poland	18,639	18,974	54	345.2	351.4
Russia	29,229	90,368	23	1,270.8	3,929.0
South Africa	93,177	93,639	377	247.2	248.4
Turkey	66,732	43,857	65	1,026.7	674.7
Total	**233,371**	**281,477**	**612**	**381.3**	**459.9**
Latin America					
Argentina	76,822	56,033	51	1,506.3	1,098.7
Brazil	184,058	327,832	255	721.8	1,285.6
Chile	50,216	93,241	124	405.0	751.9
Mexico	144,740	168,216	104	1,391.7	1,617.5
Total	**455,836**	**645,322**	**534**	**853.6**	**1,208.5**

Sources: Thomson Financial Worldscope database; and IMF staff estimates.
[1]Table portrays representative sample of all firms studied. Only firms that had observations for both market capitalization and total assets in 1999 are included.

specialization and firm size, with the following key policy implications. First, policies that promote domestic financial development generally have a positive impact on corporate health. However, the transition from low to intermediary levels of financial development is often accompanied by a substantial increase in leverage, reflecting the fact that greater availability of bank credit tends to find its way into domestic corporate borrowing. For instance, higher financial development in Asia relative to low levels in many Latin American countries explains some of the higher corporate leverage observed in the Asian region. This underscores the need both for careful policy monitoring at that stage—including in the context of IMF surveillance—and concomitant efforts to strengthen financial institutions and supervision.

Second, policies that promote openness to foreign investors have a positive effect on emerging market corporate health in terms of helping reduce their leverage and extend their debt maturity. Again, this point helps to explain some of the differences in the regional groups considered. In particular, lower openness in some Asian emerging market economies appears to be directly related to greater reliance on domestic debt. Although these benefits may come at the cost of potential currency mismatches between assets and liabilities (if the firm has its revenues denominated in domestic currency while borrowing abroad in foreign currency), whether this cost outweighs those other benefits is a question that is not examined here owing to the lack of data on debt currency denomination.

Third, institutions matter, particularly regarding corruption, which tends to increase leverage and reliance on short-term debt, and lower profitability. This finding is not new, but the fact that it holds for a broad sample of emerging market economies and more recent data reinforces the received wisdom. So, policy reforms that help

promote institutional transparency are clearly important.

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