

Slowing economic growth and mounting concerns about corporate earnings and high corporate leverage initially caused a sharp decline in equity prices and widening credit spreads in late 2000. The fall in equity prices was especially pronounced among technology stocks, which experienced virtually simultaneous dramatic declines in all the major economies. Fixed-income markets deteriorated in response to concerns about credit risk. In the high-yield market, in particular, flows dried up and spreads peaked at the highest levels since the 1990–91 recession. Markets revived in early 2001 following significant easing in U.S. monetary policy, with a particularly pronounced rebound in the high-yield market. Nevertheless, on balance, equity prices were lower and credit spreads generally higher at end-May 2001 than a year earlier. Despite the sharp repricing in U.S. financial markets, the record U.S. current account deficit, and substantially more monetary policy easing in the United States than abroad, the dollar continued to strengthen, as international investors showed a sustained strong appetite for private U.S. assets. Deteriorating market conditions weighed on bank earnings but, except in Japan, no concerns arose about the stability of any major banking system.

### Global Capital Flows and Developments in Foreign Exchange Markets

#### Global Capital Flows

With the globalization of finance, international capital flows have grown dramatically in the 1990s. Between 1990 and 1998, assets managed by mature market institutional investors more than doubled to over \$30 trillion, about

equal to world gross domestic product (GDP). Amid widespread capital account liberalization and increased reliance on securities markets, these investable funds became increasingly responsive to changing opportunities and risks in a widening set of regions and countries. Because global investment portfolios are large, proportionally small portfolio adjustments can be associated with large and volatile swings in capital flows. In 1997, for example, *gross* financing to emerging markets (which peaked in that year) and net foreign purchases of U.S. long-term securities were each equivalent to an adjustment of only about 1 percent in institutionally managed assets. Nevertheless, these adjustments sometimes had a significant impact on financial conditions in the recipient countries both when they flowed in and when they flowed out. This underscores the powerful impact that portfolio rebalancing by global investors can have on the volume, pricing, and direction of international capital flows and on conditions in both domestic and international markets. The period under review was no exception.

In 2000, the United States continued to absorb the lion's share of global capital flows, attracting 64 percent of world net capital exports (as measured by the U.S. current account deficit relative to the sum of current accounts of surplus countries), compared with 60 percent in 1999, and an average of about 35 percent during 1992–97 (Figure 2.1). Net inflows to the United States exceeded \$400 billion (Figure 2.2), including a record level of foreign portfolio investment that nearly could have financed the U.S. current account deficit on its own.<sup>1</sup> As in previous years, overseas investors (particularly in Europe) bought large quantities of U.S. equities and corporate bonds and cut back net purchases

<sup>1</sup>Figures for total net capital flows exclude errors and omissions, and therefore differ from current account balances.

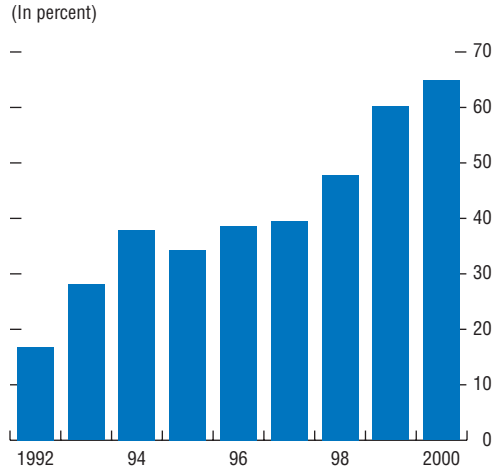
of U.S. treasury securities, as the supply of U.S. treasuries shrank (Table 2.1).<sup>2</sup> Gross foreign purchases of U.S. equities were particularly strong, rising to \$3.6 trillion—a six-fold increase since 1996. Foreign direct investment (FDI) picked up to a record level of about \$150 billion, about half of which represented mergers and acquisitions (M&A) activity. Net capital inflows from Europe continued apace in the first quarter of 2001, including continued strong purchases of U.S. corporate bonds and equities.

The sustained strong international appetite for private U.S. assets was maintained despite the deterioration in the U.S. economy and financial markets. The continued interest in U.S. investments no doubt strongly reflected investor beliefs about future prospects for the U.S. economy and financial markets. Notwithstanding uncertainties about the extent to which the U.S. slowdown reflected structural rather than cyclical factors, investors appeared to have been optimistic that the U.S. economy would rebound quickly from the current slowdown and reestablish strong growth relative to other developed countries.

Accordingly, many investors seemed to believe that the correction in U.S. financial markets would be short-lived and that U.S. markets would outperform other markets on a risk-adjusted basis in the medium term. Underpinning both of these beliefs, investors evidently had considerable confidence that easier U.S. monetary policy would both dampen the cyclical slowdown and limit its repercussions for U.S. financial markets.

Underlying the net international capital outflows from Europe, euro-area investors sharply increased their net purchases of foreign portfolio assets—particularly equities, which rose by 85 percent. Meanwhile, foreign investors sold significant amounts of European shares received through cross-border M&A transactions.<sup>3</sup> In addition, foreigners increased their purchases of

**Figure 2.1. United States: Current Account Deficit as Share of Global Surpluses**

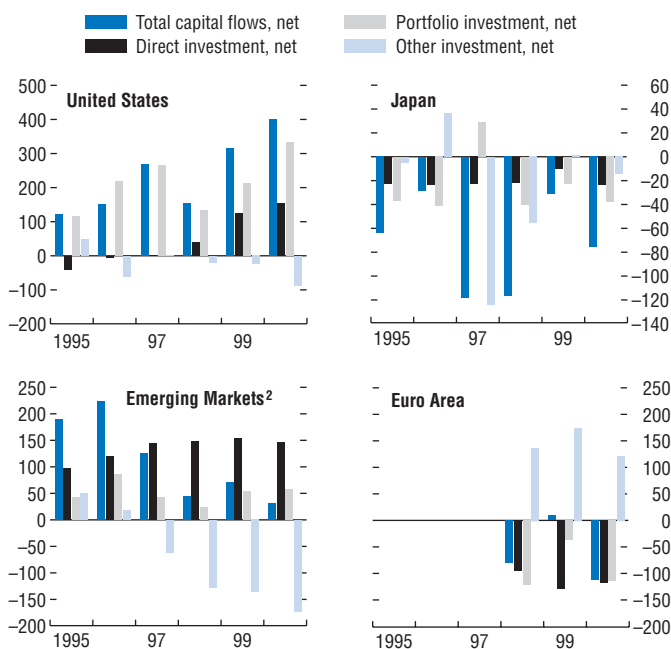


Source: IMF, *World Economic Outlook* database.

<sup>2</sup>See Box 2.1 in IMF (2000).

<sup>3</sup>According to the U.S. Treasury, U.S. investors acquired \$303 billion in foreign shares from equity swaps in connection with foreign takeovers of U.S. companies; the bulk of these were shares in euro-area companies.

**Figure 2.2. Global Capital Flows<sup>1</sup>**  
(In billions of U.S. dollars)



Sources: IMF, *World Economic Outlook* database; IMF, *International Financial Statistics*; and ECB *Monthly Bulletin*.

<sup>1</sup>The total net capital flows are the sum of direct investment, portfolio investment, and other investment flows. These figures do not include reserve assets. "Other investment" includes bank loans and deposits.

<sup>2</sup>Total net private capital flows.

euro-area debt securities as the differential between U.S. and euro-area bond yields narrowed. Both inward and outward FDI rose, as both European and foreign corporations diversified their operations internationally.

Japanese net capital outflows picked up in 2000, as both FDI and portfolio investment outflows rose. Foreign investors shifted their net purchases from equity to fixed-income markets and bought significant amounts of Japanese government bonds (JGBs). This may have reflected concerns by global fixed-income investors that they might underperform global benchmark indices. Many of these investors reportedly had held underweight positions in JGBs vis-à-vis international benchmark weightings while JGB prices rose.<sup>4</sup> Both foreign purchases of Japanese equities and Japanese purchases of foreign securities seem to have picked up more recently. In March 2001, Japanese purchases of foreign bonds reached their highest level since June 2000.

Foreign direct investment continued to account for a substantial share of net capital flows from mature to emerging markets.<sup>5</sup> Overall private flows declined, perhaps reflecting a reappraisal of the risk-reward trade-off in emerging market investments following successive crises in Asia, Russia, and other countries during past years. During 2000, the decline in flows also may have been influenced by concerns about the impact of the global slowdown on smaller countries. FDI inflows declined slightly but remained reasonably strong as foreign investors acquired emerging market telecommunications companies, power and other utilities companies, and banks. Net banking outflows continued to increase as petroleum exporters accumulated dollars in overseas bank accounts.

Although net capital flows provide useful insights about balance-of-payments financing and net funding requirements, they can considerably

<sup>4</sup>Foreign investors own about 7 percent of JGBs outstanding. By comparison, foreigners own about 22 percent of U.S. treasuries and about 30 percent of euro-area government securities (see Chapter IV).

<sup>5</sup>See IMF (2001a).

**Table 2.1. Net Foreign Purchases of U.S. Long-Term Securities***(In millions of U.S. dollars)*

	Government Bonds	Government-Sponsored Agency Bonds <sup>1</sup>	Corporate Bonds	Corporate Stocks	Total
1995	134,115	28,729	57,853	11,240	231,937
1996	232,241	41,723	83,743	12,511	370,218
1997	184,171	49,853	84,358	69,597	387,979
1998	49,039	56,802	121,930	50,020	277,791
1999	-9,953	92,200	160,392	107,522	350,161
2000	-53,790	152,841	182,403	174,890	456,344
of which:					
Europe	-50,704	52,735	126,971	164,654	293,656
of which:					
France	-4,146	58	2,158	5,727	3,797
United Kingdom	-33,669	30,185	109,967	58,736	165,219
Germany	-7,304	2,489	1,578	31,752	28,515
Switzerland	-10,326	1,554	2,279	11,960	5,467
Japan	10,580	23,802	15,040	2,070	51,492
<i>Memorandum items:</i>					
First Quarter 2001	2,804	42,380	68,158	41,677	155,019
of which:					
Europe	15	17,272	46,920	34,025	98,232
of which:					
France	-225	1,428	899	3,153	5,255
United Kingdom	8,069	10,493	37,306	11,464	67,332
Germany	-2,817	3,010	1,703	3,771	5,667
Switzerland	796	968	1,702	2,082	5,548
Japan	-4,219	7,759	-365	842	4,017

Source: United States, Department of the Treasury, *Treasury Bulletin* (various issues).<sup>1</sup>Includes bonds issued by U.S. government corporations and federal agencies.

understate the volume and volatility of international portfolio rebalancing. Gross flows more closely reflect international transactions and are more relevant in terms of their impact on market prices and volatility. Since the mid-1980s, on a global basis they have risen sharply to about six times the level of net flows (Figure 2.3).<sup>6</sup> The high level of gross flows relative to net flows suggests that countries and regions that have small net capital flows can nevertheless experience substantial gross inflows and outflows of capital. This also may help explain why such countries and regions may experience considerable volatility in asset prices despite relatively small net financing needs.

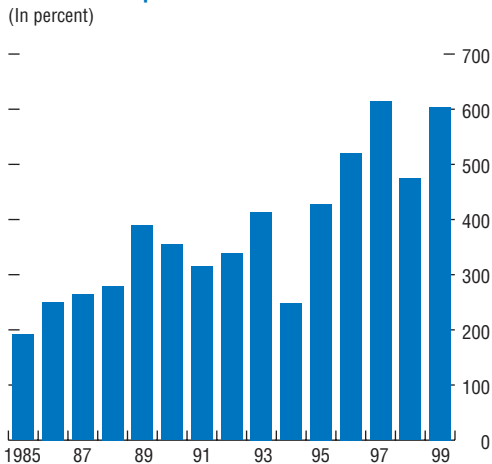
### Foreign Exchange Markets

During the year ending May 2001, the dollar continued to strengthen, the euro continued to

weaken, and yen strengthening gave way to decline. The 1999 and 2000 *International Capital Markets* reports highlighted the possibility of misaligned currencies and the risk of significant adjustments in the major currency markets, in part due to growing external imbalances in some of the major industrialized countries, notably the United States and Japan. If anything, the possibility of misalignments increased during the period under review because financial market developments and capital flows—more than macroeconomic fundamentals and policies—may have influenced the values of the U.S. dollar and the euro. After appreciating a cumulative 9 percent in nominal effective terms over the two-year period to May 2000, the dollar appreciated by a further 8 percent during the year ending May 2001 amid strong net international demand for U.S. assets. This occurred despite the sharper slowdown in the United States than in other major

<sup>6</sup>Breaking down these categories further (for example, into gross purchases and gross sales of foreign assets by domestic residents) would yield even larger gross flows.

**Figure 2.3. Gross Global Capital Flows Relative to Net Global Capital Flows<sup>1</sup>**



Sources: IMF, *World Economic Outlook* database; and IMF, *International Financial Statistics*.  
<sup>1</sup>Ratio of the sum of absolute values of gross inflows and gross outflows to the sum of absolute values of current account balances.

countries, considerable monetary easing, broadly stable long-term interest rate differentials vis-à-vis other major countries, and another record current account deficit (Figure 2.4).

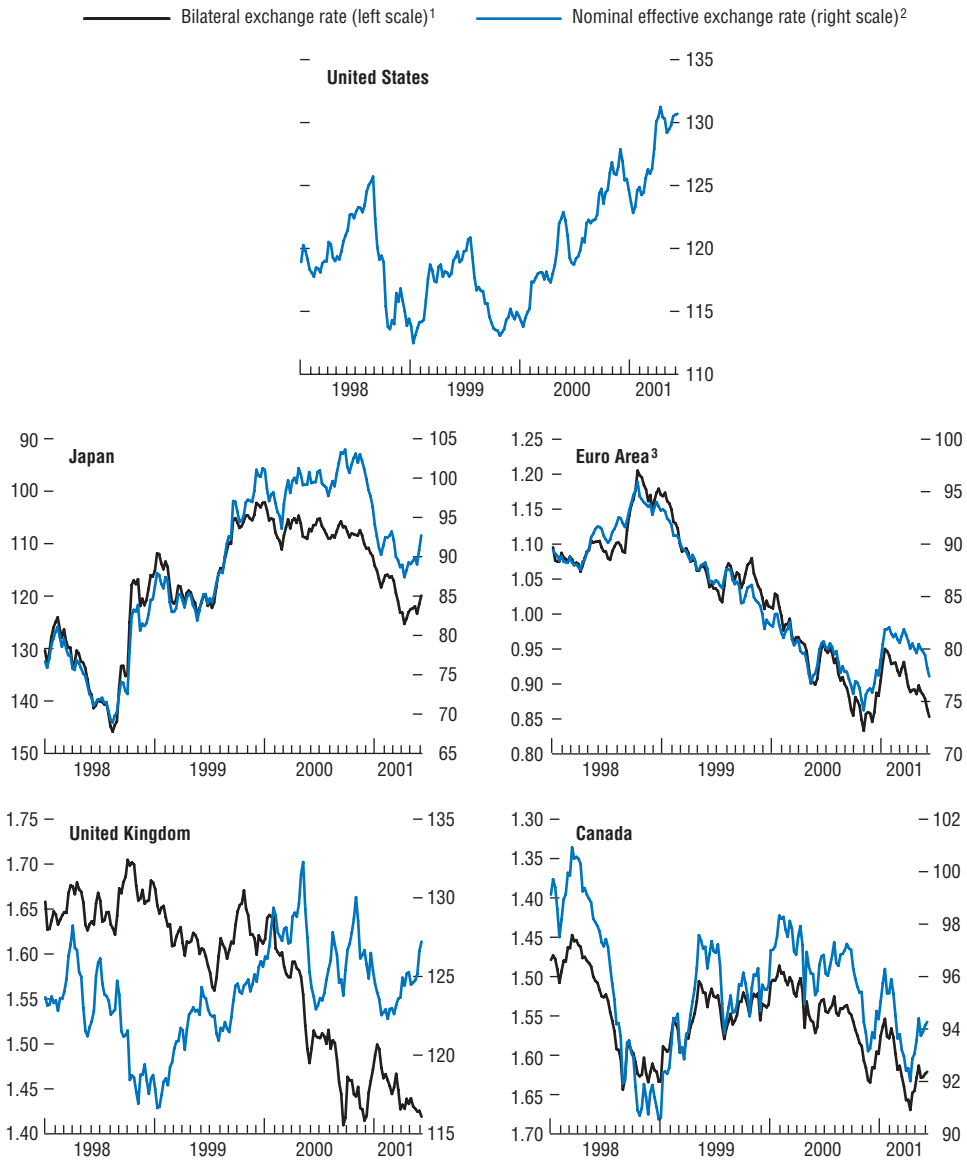
The euro depreciated by about 3 percent in nominal effective terms and by about 9 percent against the dollar (to \$0.84), trading as low as \$0.82 notwithstanding stronger growth in the euro area than abroad. Except for brief periods after three official foreign exchange interventions in the autumn of 2000 and a short-lived rebound in December, the euro fell steadily vis-à-vis the dollar. Relative firming of the euro area’s monetary policy stance compared with that of the United States seemed to have little effect on the exchange rate: the euro declined against the dollar as the European Central Bank (ECB) tightened in August and October, and again in the first four months of 2001 as the U.S. Federal Reserve eased key interest rates by 200 basis points. The euro’s depreciation against the dollar may instead have been associated with flows of portfolio capital, particularly equity capital, from the euro area to the United States.<sup>7</sup>

By contrast, the yen’s decline seemed to reflect Japan’s deteriorating macroeconomic performance and growing concerns about the health of the financial sector. During the year ending May 2001, the Japanese yen depreciated by 6 percent in nominal effective terms, by 9 percent against the dollar (to ¥119), and was roughly unchanged vis-à-vis the euro (at about ¥101). The yen held steady against the dollar during most of 2000, firming slightly after the Bank of Japan (BOJ) ended the zero interest rate policy in August. In the fourth quarter, amid accumulating evidence that Japan’s nascent recovery had stalled, the yen began to weaken sharply against the dollar. The decline continued into 2001 as falling stock prices fed concerns about the stability of Japan’s financial system and the health of its corporate sector and as the BOJ introduced a quantitative monetary policy framework. The yen’s weakening was

<sup>7</sup>See IMF (2001b).

**Figure 2.4. Selected Major Industrial Countries: Exchange Rates**

(Weekly averages)



Source: IMF.

Note: In each panel, the effective and bilateral exchange rates are scaled so that an upward movement implies an appreciation of the respective local currency.

<sup>1</sup>Local currency units per U.S. dollar, except for the euro area and the United Kingdom, for which data are shown as U.S. dollars per local currency.

<sup>2</sup>1995 = 100; constructed using 1989–91 trade weights.

<sup>3</sup>Prior to 1999, data refer to synthetic rate.

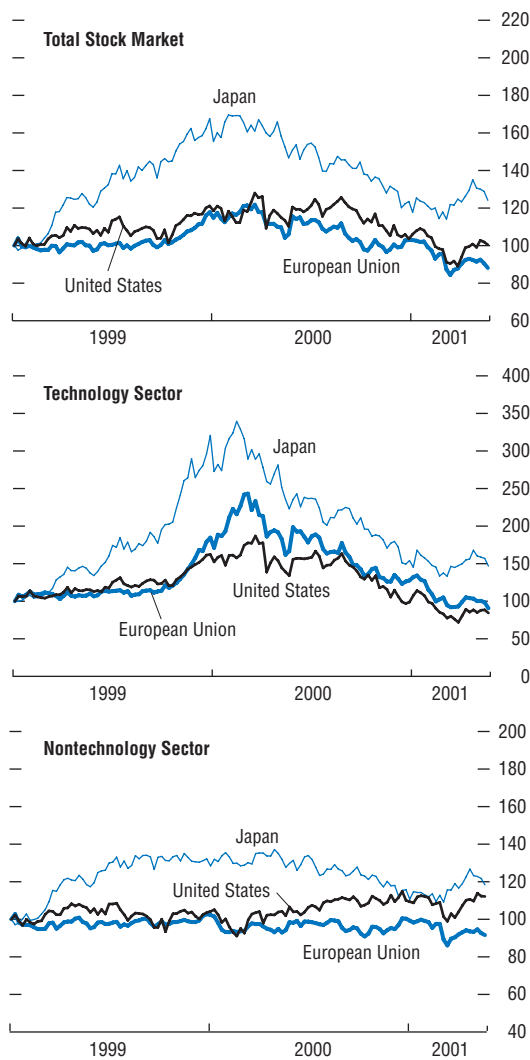
briefly interrupted by capital reflows in the run-up to the March fiscal year-end.

### Equity Markets

Last year's *International Capital Markets* report highlighted the divergent performance of technology and nontechnology stocks in global markets.<sup>8</sup> This divergence was particularly pronounced in the period leading up to March 2000, at which point valuations for technology stocks implied that investors expected future earnings to grow at an exceptionally rapid rate. During the period under review, the global economic slowdown, downward pressure on corporate earnings, and deteriorating investor sentiment resulted in plummeting equity valuations globally through early 2001, with a particularly dramatic sell-off in technology, media, and telecommunications (TMT) stocks (Figure 2.5). Notwithstanding the subsequent rebound in equity markets, compared with their early 2000 peaks, indices of TMT stocks have declined by 50 to 60 percent in the United States, Japan, and Europe. By contrast, indices of nontech stocks are little changed compared with their levels in February/March 2000 and are still about 30 percent above their levels in autumn 1998, prior to the recent run-up in global stock markets. Broad market indices that include companies from a variety of sectors have declined by about 10–20 percent; indices that have larger weights on technology stocks have registered larger declines.

Since mid-1998, TMT stocks, as well as the broader indices, have become highly correlated.<sup>9</sup> For example, the correlation between U.S. and European share prices increased from 0.4 in the mid-1990s to 0.8 in 2000. Reflecting increased correlation, broad indices in the United States, Japan, and Europe fell from their peaks by surprisingly similar amounts (Table 2.2). This increase in correlation has co-

**Figure 2.5. Equity Indices: Technology Sector vs. Nontechnology Sector**  
(January 1, 1999 = 100)



Source: Primark Datastream.

<sup>8</sup>See IMF (2000), pp. 17–20.

<sup>9</sup>The increase in cross-country correlations was part of a longer-term trend that has been observed since the 1970s.



**Table 2.2. Equity Price Changes**  
(In percent)

	During the Run-Up in Prices <sup>1</sup>		
	Technology	Nontechnology	Total
United States	181	28	68
France	350	69	116
Germany	308	46	90
United Kingdom	214	13	43
Japan	271	41	83

	During the Sell-Off <sup>2</sup>		
	Technology	Nontechnology	Total
United States	-52	5	-22
France	-48	7	-14
Germany	-62	-4	-25
United Kingdom	-52	19	-9
Japan	-53	-8	-25

Source: Primark Datastream (Datastream proprietary indices).

<sup>1</sup>During October 1998–February/March 2000 (peaks vary by country).

<sup>2</sup>During February/March 2000–April 2001 (peaks vary by country).

incided with a number of important structural trends. First, financial and economic globalization and the worldwide information technology boom appear to have increased the importance of global industry factors in determining equity prices.<sup>10</sup> For instance, with the introduction of the euro and the elimination of foreign exchange risk in the euro area, international equity portfolios are increasingly managed from a sectoral rather than geographic perspective. In addition, an increasing number of companies are listed on more than one national exchange, and the exchanges themselves increasingly have overlapping trading hours. Second, portfolio managers tend to rely on similar portfolio- and risk-management rules and models. When equity volatility rises, as it has from time to time in the last year, a variety of such models and rules may signal portfolio managers to reduce overall equity exposure by selling shares in many national markets simultaneously.<sup>11</sup>

Broad price movements in the major equity markets reflected this increased correlation, as

the major equity markets generally peaked together in the second and third quarters of 2000. U.S. equity prices stabilized after the spring sell-off in technology stocks, and broad market indices recovered some losses as interest rates declined and earnings growth strengthened. Stock prices resumed their decline in September, led by the technology sector, amid profit warnings, ratings downgrades, and reduced short-term earnings forecasts (although long-run earnings forecasts remained at high levels—see Figure 2.6). In January 2001, U.S. equity prices recovered following monetary easing by the Federal Reserve, but the rally was cut short by corporate earnings disappointments in February and March. Tech stocks declined, then broader indices followed amid growing concerns about the U.S. economic outlook. Equity prices rebounded again in April after an inter-meeting cut in interest rates, but failed to recover the losses sustained since mid-2000. At end-May 2001, the S&P500 and Nasdaq indices stood about 12 percent and 40 percent, respectively, below the levels they had attained a year earlier.

By May 2001, broad indices of European share prices had declined by 15 percent from their September 2000 peaks.<sup>12</sup> This drop occurred roughly in line with the U.S. markets, notwithstanding the relatively favorable economic outlook in Europe compared with the United States. Linkages of major European corporations to the U.S. economy may explain some of this co-movement: many large European companies are heavily exposed to U.S. demand conditions, particularly through their U.S.-based affiliates.

Japanese equity prices also fell substantially in response to deteriorating macroeconomic fundamentals, growing concern about the weak financial and corporate sectors, and technical factors. Starting in the second half of 2000, the outlook for corporate profits dimmed as the recovery stalled, adding to concerns about the highly

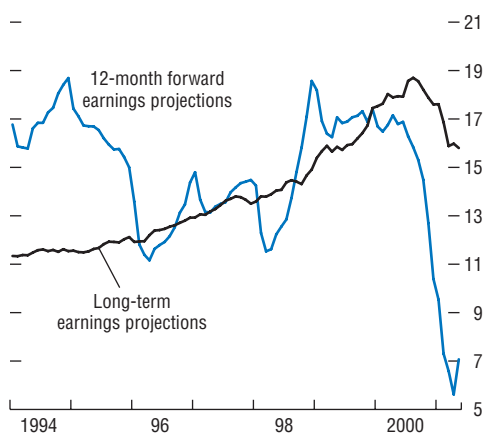
<sup>10</sup>See Brooks and Catão (2000).

<sup>11</sup>The Nasdaq displayed exceptionally high volatility in 2000, gaining or losing 5 percent or more on 27 days in 2000 compared with only 7 days between 1990 and 1999. See United States, Board of Governors of the Federal Reserve System (2001).

<sup>12</sup>Figures are based on the FTSE Eurotop 100 index.



**Figure 2.6. S&P 500 Earnings Outlook**  
(In percent)



Source: IBES International.

leveraged corporate sector. The possibility that banks might unwind cross-shareholdings in the run-up to the introduction of mark-to-market accounting may also have weighed on share prices, along with sales by foreign investors who (despite their still-underweight positions) reduced their allocations to the Japanese equity market after raising them in the first half of 2000. Between mid-2000 and early March 2001, the relatively tech-heavy Nikkei index dropped by about 30 percent to around 12,000, while the broader Topix declined by about 25 percent. Concerns about the health of Japan's banks, which have significant exposures to the equity market, grew as the Nikkei declined to post-bubble lows in March 2001.<sup>13</sup> That month, the government announced an emergency package that included a fund to buy equity holdings from banks, the BOJ switched to a quantitative monetary policy framework, and a new prime minister assumed office with widespread popular support. Stocks rallied, and by end-May the Nikkei was up about 12 percent from its March lows.

Although the overall decline in equity prices has probably brought equity valuations more in line with company fundamentals, broad-market valuation indicators suggest that stock price indices in some countries and segments are still on the high side of historical experience. Notwithstanding the dramatic decline in prices, price-earnings ratios in the technology sector remain at high levels compared with past years, while in the United States price-earnings ratios for non-technology stocks also appear somewhat elevated. At the same time, declining long-term interest rates have lent support to equity market valuations. An assessment of expected real earnings growth implied by price-earnings ratios and long-term interest rates finds that such expectations are somewhat above their long-run averages (see Box 2.1).

<sup>13</sup>The Nikkei is a relatively narrow arithmetic index of 225 large companies. Although it is a widely recognized benchmark, some suggest that it is not fully representative of the broader Japanese stock market (see Japan Securities Research Institute, 2000).

**Box 2.1. Price-Earnings Ratios and Implied Real Earnings Growth in Major Stock Markets**

This box examines the expected real earnings growth rates that are implied by the current levels of price-earnings ratios and long-term real interest rates in the United States, the European Union, and Japan, with a view to assessing whether stock prices currently reflect realistic expectations about earnings prospects.

Under the assumption that the dividend payout ratio is constant and equal to one, the current equity price,  $P_t$  can be expressed as the discounted present value of future earnings expected at time  $t$ ,  $E_{t+i}^e$  ( $i \geq 1$ ),<sup>1</sup>

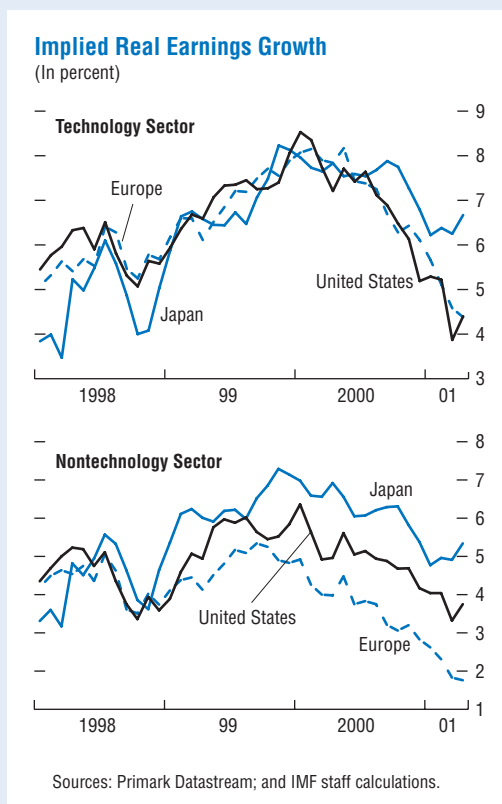
$$P_t = \sum_{i=1}^{\infty} \frac{E_{t+i}^e}{(1 + \rho_t)^i}, \tag{1}$$

where  $\rho_t$  denotes the expected real cost of equity capital. If future earnings are expected to grow at a constant real rate  $g_t^e$ , equation (1) becomes

$$\frac{P_t}{E_t} = \frac{1 + g_t^e}{\rho_t - g_t^e}. \tag{2}$$

Based on equation (2), the implied real earnings growth rate,  $g_t^e$ , can be estimated by setting the cost of capital equal to the sum of the real 10-year government bond yield,  $r_p$ , and the equity premium,  $e$ , assumed to equal 6 percent.<sup>2</sup>

The implied rate of earnings growth in the technology and nontechnology sectors in



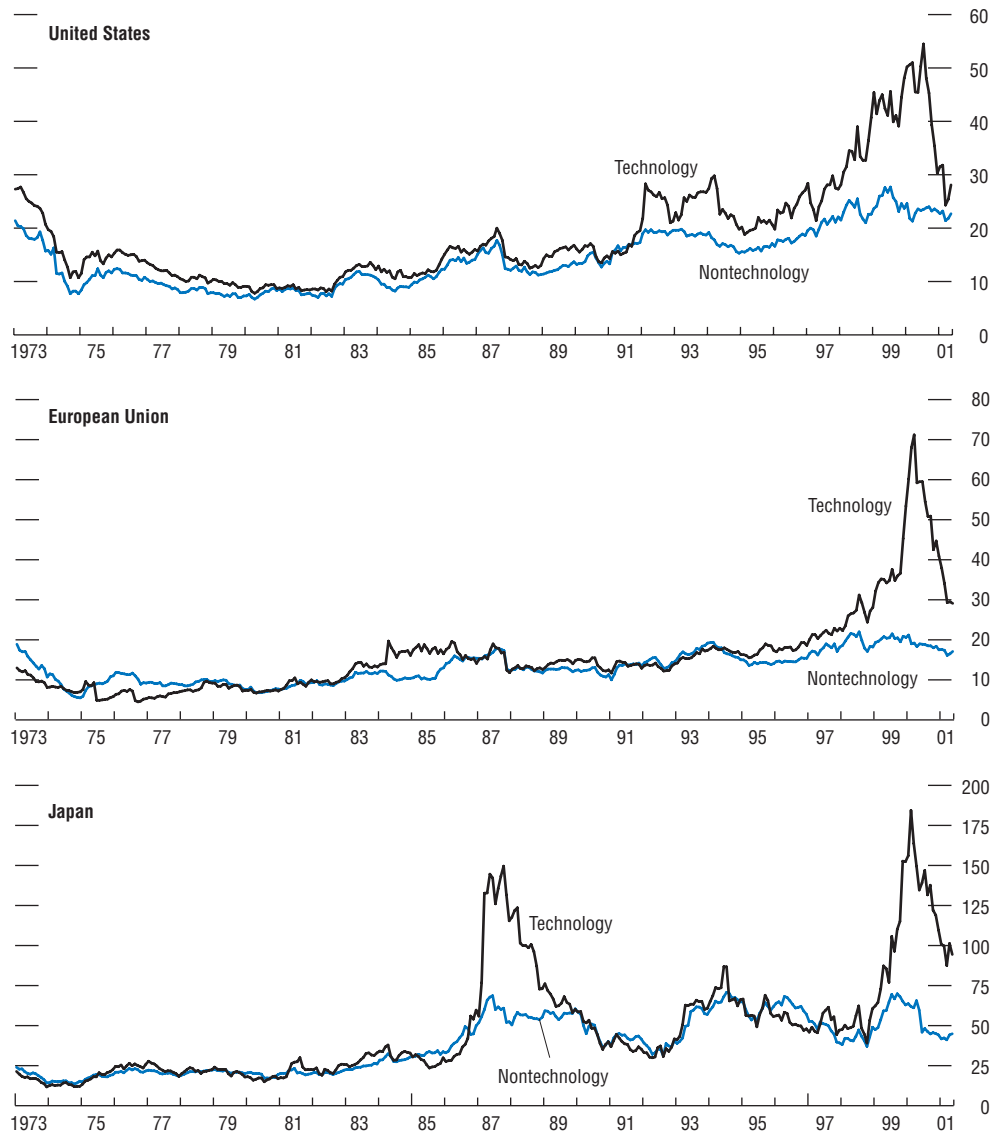
	Technology Sector		Nontechnology Sector	
	Price-Earnings Ratio	Implied Real Earnings Growth	Price-Earnings Ratio	Implied Real Earnings Growth
	<i>(In percent)</i>		<i>(In percent)</i>	
<b>United States</b>				
March 2000	51.3	7.7	21.0	4.9
April 2001	25.4	4.4	21.8	3.7
Historical average <sup>1</sup>	22.8	3.9	16.9	2.4
<b>Europe</b>				
March 2000	74.2	7.9	19.3	4.0
April 2001	29.5	4.4	16.5	1.8
Historical average <sup>1</sup>	20.5	3.1	15.2	1.3
<b>Japan</b>				
March 2000	188.8	7.6	63.1	6.6
April 2001	101.3	6.7	44.2	5.3
Historical average <sup>1</sup>	64.8	6.1	49.7	5.6

Sources: Primark Datastream; and IMF staff calculations.  
<sup>1</sup>The price-earnings (PE) ratio is the historical average for January 1984–April 2001. The real implied earnings growth is calculated using the historical PE ratio and the April 2001 real interest rate.

<sup>1</sup>See, for example, Gordon (1962) and IMF (1998b, 1999). The calculations are based on earnings instead of dividends owing to data limitations. In addition, dividends are affected by corporate financial policy and therefore may be less reliable indicators of future cash flows than earnings.

<sup>2</sup>This assumption is consistent with the results of Mehra and Prescott (1985) and Campbell, Lo, and MacKinlay (1997). The assumed level of the equity premium does not affect intertemporal and cross-country assessments as long as equity premia are constant over time and across countries. For instance, employing a larger (or smaller) constant equity premium would shift the implied earnings growth rates up (or down) by the same percentage amount. The analysis is based on proprietary price-earnings series compiled by Primark Datastream. Real bond yields were calculated by subtracting consumer price inflation from nominal yields. The German 10-year bund yield adjusted for consumer price inflation is used as a proxy for real bond yields in the European Union.

**Selected Major Industrial Countries: Price-Earnings Ratios**



Source: Primark Datastream.

Europe, Japan, and the United States peaked in tandem with stock prices in the first quarter of 2000 (see the figures). Current price-earnings ratios are still somewhat higher than their long-run averages in most sectors and countries (see the table). Similarly, implied earnings growth rates

are generally somewhat above the levels consistent with historical price-earnings ratios and current interest rates. These facts suggest that stock market valuations may still be at somewhat high levels compared with the past, particularly in view of the present low level of real interest rates.

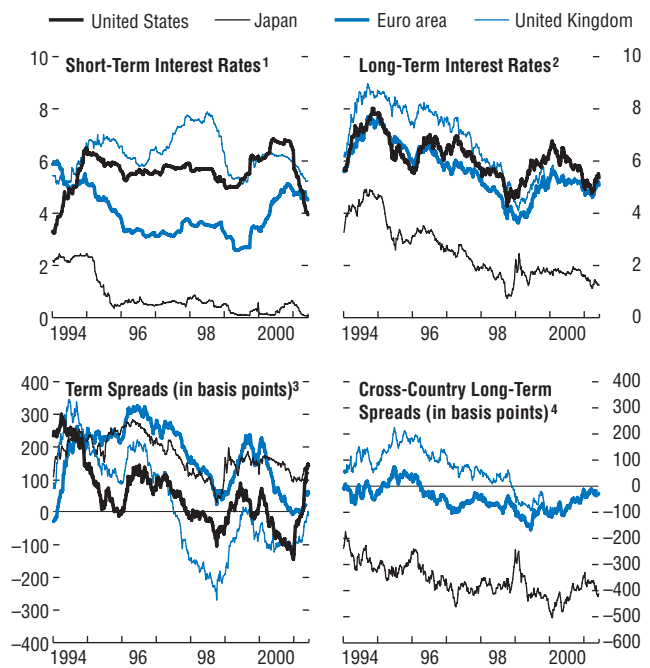
## National and International Credit Markets

### Credit Markets in the United States, Europe and Japan

During the year to May 2001, credit was repriced in the mature markets as the deteriorating global economic situation put increasing pressure on corporate earnings and heightened concerns about credit risk in the United States and, to a lesser extent, in Europe. Notwithstanding a decline in interest rates as monetary policy tightening gave way to actual and expected future easing (Figures 2.7–2.8), corporate borrowers came under increasing strain and default rates began to rise. Investor concerns about credit risk mounted, culminating in December in a repricing in the credit-sensitive high-yield market, where issuance dried up and spreads rose to recession levels (Figure 2.9). Credit markets revived in January 2001 after a surprise cut in interest rates by the Federal Reserve, although spreads remained at higher levels than before the turbulence.

Starting in the second half of 2000, concerns about the credit risk of some U.S. and European companies began to grow following realizations that telecoms companies—which had relied heavily on the debt markets for financing—may have become overextended.<sup>14</sup> As the year wore on, the deteriorating global economic outlook raised concerns about heavily indebted corporations in other sectors. These concerns were fed by episodes of financial stress at high-profile firms—as reflected, for example, in Standard & Poor’s downgrade of Xerox’s rating to sub-investment grade. Other financial indicators supported the impression of deteriorating credit quality: the default rate on high-yield bonds reached its highest level since 1991 and

**Figure 2.7. Short- and Long-Term Interest Rates**  
(In percent)



Source: Bloomberg Financial Markets L.P.

<sup>1</sup>For United States, Japan, and United Kingdom, three-month LIBOR; and for euro area, three-month EURIBOR.

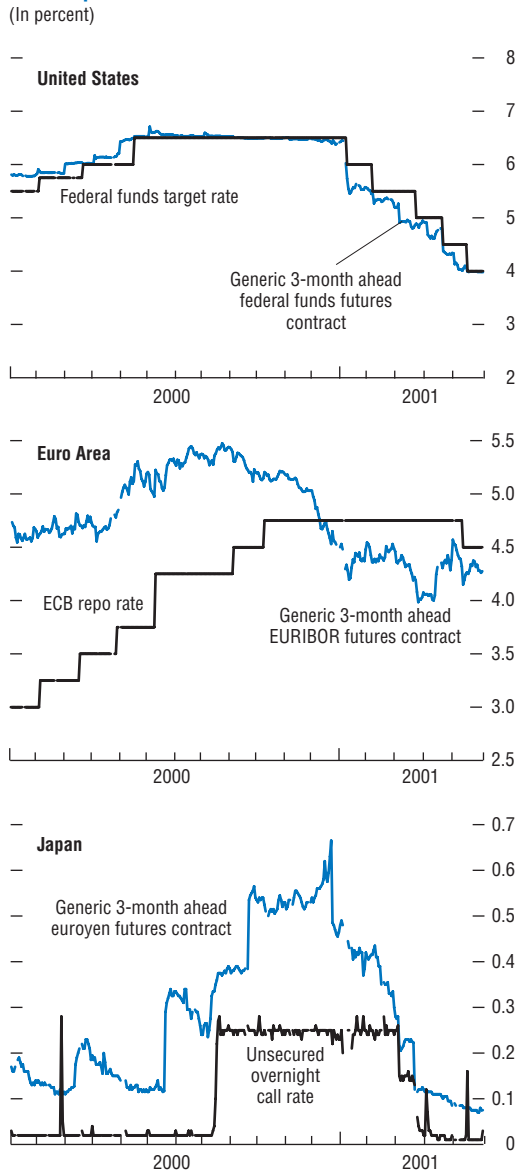
<sup>2</sup>Ten-year government bond yields.

<sup>3</sup>Spread between yield on 10-year government bonds and three-month LIBOR or EURIBOR.

<sup>4</sup>Spread between yield on 10-year government bonds and yield on 10-year U.S. government bond.

<sup>14</sup>Amid substantial takeover activities and purchases of mobile phone licenses, telecoms increased their leverage considerably, accounting for over 25 percent of the worldwide gross issuance of corporate debt securities in 2000. Much of this debt was owed by a few companies: for instance, the six biggest license-holders had \$200 billion in debt.

**Figure 2.8. Monetary Policy Rates and Short-Term Rate Expectations**  
(In percent)



Source: Bloomberg Financial Markets L.P.

the delinquency rate on business loans at commercial banks continued to rise.<sup>15</sup> U.S. corporate leverage rose, and reached all-time highs relative to net assets, partly reflecting sizable equity buybacks in recent years. Household leverage rose as well: debt service payments as a percent of disposable income increased slightly to 13.7 percent, the highest level since the mid-1980s.

Mounting signs of deteriorating credit quality had the most pronounced impact on conditions in the high-yield market. High-yield investors showed heightened preference for liquidity, as spreads on medium- and smaller-sized high-yield issues rose particularly sharply, although treasury and investment-grade corporate bond markets remained liquid. Credit concerns also adversely affected lower-rated (but investment-grade) borrowers in the commercial paper (CP) market, who were reportedly shut out of the market and instead drew on bank credit lines and backup facilities or issued longer-term debt (Figure 2.10). Long-term credit spreads rose much more sharply than short-term spreads, however, perhaps due to concerns that credit quality might deteriorate further. By contrast with the high-yield market, pricing and issuance in the investment-grade bond markets were little affected, notwithstanding downward pressure on the profits of large U.S. companies.<sup>16</sup>

After the U.S. Federal Reserve cut interest rates in January 2001, spreads declined and issuance resumed in the high-yield market. High-yield bond issues rebounded strongly in the first quarter—particularly in the U.S. domestic market—as further rate cuts were put in place, and investment-grade issuance set new records, although spreads remained at high levels.

<sup>15</sup>The surge in high-yield issuance during 1995–97 may have contributed to the rise in default rates through a “vintage effect”: that is, historical data show that the probability that an average high-yield issuer will default peaks about three years after a high-yield bond is issued.

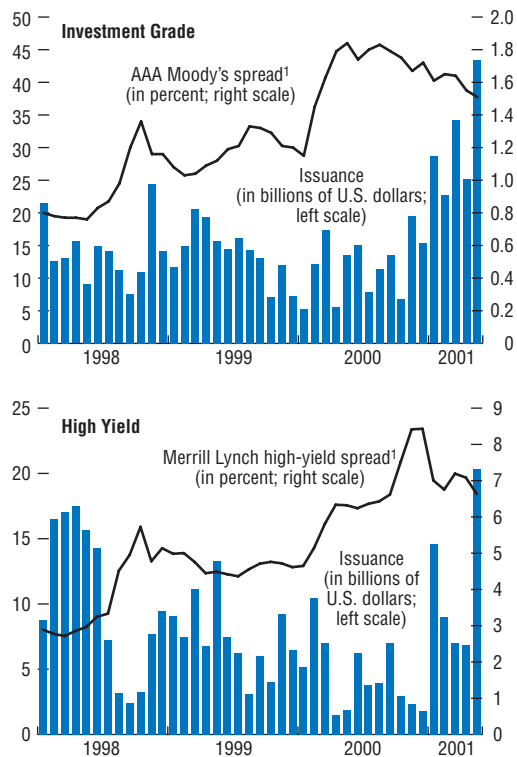
<sup>16</sup>In the fourth quarter of 2000, for example, large U.S. corporations reported a 20 percent decline in profits. This was followed in the subsequent quarter by a 42 percent decline in profits to the lowest level in a decade.

Meanwhile, some highly leveraged telecoms companies reduced their debt burdens by selling assets, refinancing, and securitizing cash flows—a process that was still in train at mid-2001.<sup>17</sup> Flows recovered and spreads narrowed in the CP market as well. With the benefit of hindsight, the sharp widening in spreads for high-yield issues could be seen as reflecting a reappraisal of credit risk and reallocation of credit after a long-running boom, rather than the indiscriminate shedding of risk and cutting-off of credit flows that characterize a credit crunch. Instead, the tiering of credit spreads—that is, greater discrimination between spreads for investment-grade and sub-investment-grade borrowers—suggests increased credit market discipline.

The tiering in U.S. credit markets was broadly reflected in Europe’s nascent corporate bond market, which nevertheless continued to grow—probably because it mostly comprised investment-grade borrowers (Figure 2.11). The introduction of the euro in 1999 expanded the investor base for European corporate debt issuers and prompted a surge in euro-denominated corporate debt issuance, contributing to a further broadening and integration of Europe’s capital markets. To establish a reputation in the burgeoning market, some firms reportedly placed issues even in the absence of major financing needs. Issue sizes rose as investors sought liquidity and the credit spectrum broadened to lower-rated issues as investors increased their appetite for credit risk. Notwithstanding the recent boom, bonds still account for a small share of outstanding corporate liabilities in the euro area compared with loans. This is partly explained by the reluctance of some corporations to open their books to rating agencies and the continued support of house banks.

Credit spreads in the Japanese corporate bond market have been highly compressed despite deteriorating economic fundamentals. For example, spreads on bonds issued by BBB-rated

**Figure 2.9. United States: Corporate Bond Market**



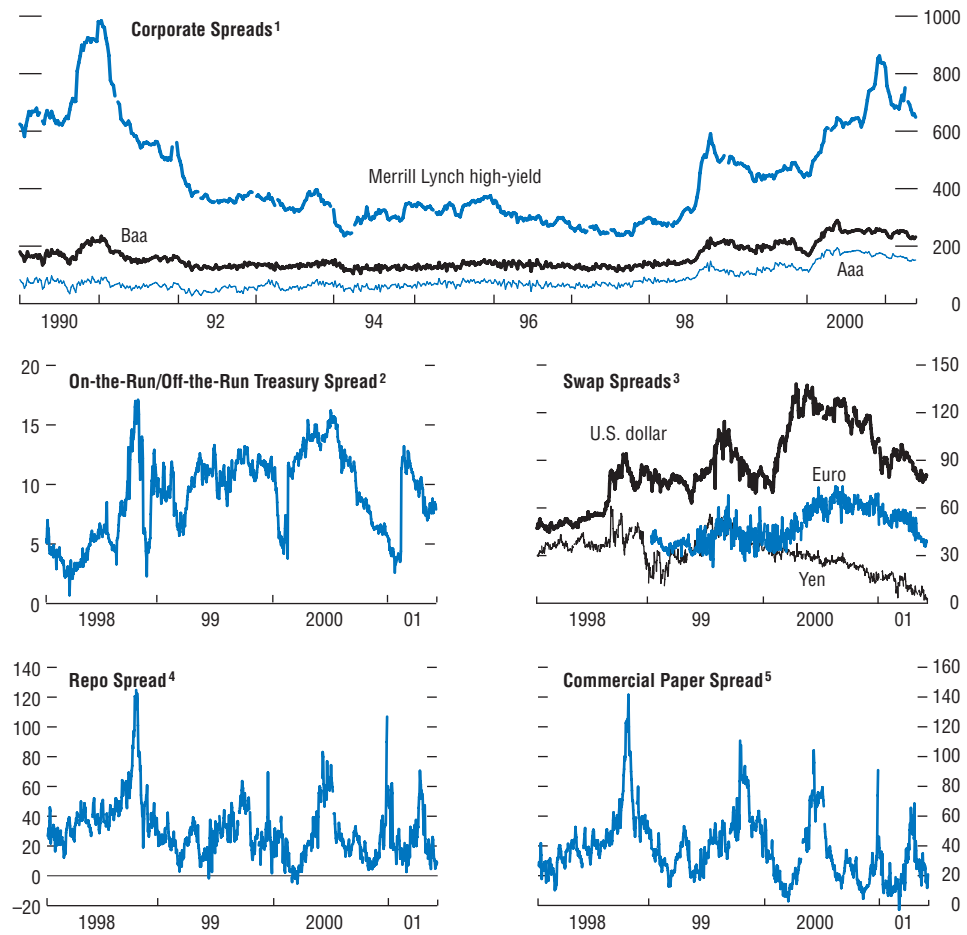
Sources: U.S. Board of Governors of the Federal Reserve System; and Bloomberg Financial Markets L.P.

<sup>1</sup>Spreads against yields on 30-year U.S. government bonds.

<sup>17</sup>See “Unburdening” (2001).

**Figure 2.10. Selected Spreads**

(In basis points)



Sources: Bloomberg Financial Markets L.P.; and Merrill Lynch.

<sup>1</sup>Spread over 30-year U.S. treasury bond; weekly data.

<sup>2</sup>Spread of a 30-year off-the-run treasury bond over a 30-year on-the-run treasury bond.

<sup>3</sup>Spread of fixed-rate leg of 10-year interest rate swaps over 10-year government bond.

<sup>4</sup>Spread between yields on three-month U.S. treasury repos and on three-month U.S. treasury bill.

<sup>5</sup>Spread between yields on 90-day investment grade commercial paper and on three-month U.S. treasury bill.

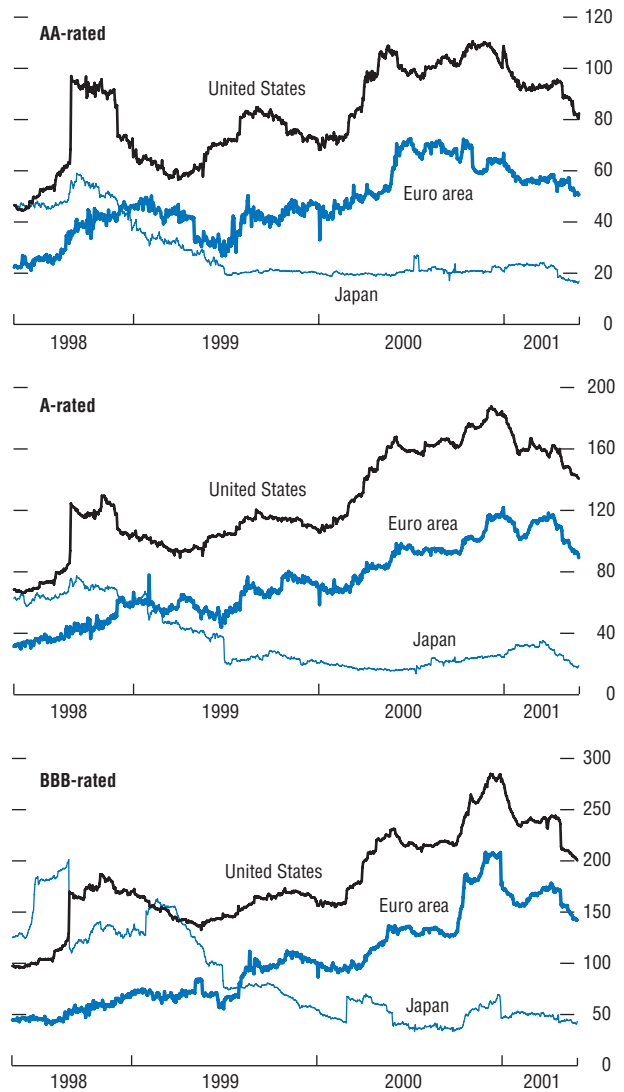


Japanese corporations are under 50 basis points compared with about 200 basis points for bonds issued by similarly rated U.S. corporations. Technical factors may explain this anomaly: Japanese institutional investors such as insurance companies, mutual funds, pension funds, and trust banks have been heavy buyers of Japanese corporate bonds amid shrinking corporate issuance and a rapidly growing supply of JGBs. Moreover, Japanese corporate credit spreads may not fully reflect intrinsic credit risk. In Japan, creditors are generally reluctant to pursue bankruptcy proceedings even for technically insolvent corporations. Finally, the comparatively narrow spreads also may be partly attributable to efforts by the authorities to promote corporate lending through loan guarantees.

**International Securities and Syndicated Loan Markets**

The reassessment of credit risks—particularly those associated with the telecoms sector—prompted shifts in issuance activity in the international securities markets (Table 2.3). In the first half of 2000, brisk issuance was supported by a huge volume of telecoms issues.<sup>18</sup> In the second half of the year, as investors reevaluated credit risk in the light of concerns about telecoms firms’ rising leverage, credit spreads widened and telecoms issues fell sharply. Issuance of long-term securities by low-rated borrowers slowed particularly markedly and the pattern of financing shifted from longer-term instruments toward money market instruments (net issues of which almost doubled). This shift was reversed in the first quarter of 2001, as borrowers took advantage of improved conditions in the international bond market to lengthen maturities. Telecoms borrowers took part in the rebound, as their issuance of long-term interna-

**Figure 2.11. Nonfinancial Corporate Credit Spreads**  
(In basis points)



Source: Merrill Lynch.

<sup>18</sup>In the first half of 2000, telecoms issuance represented 29 percent of the gross issuance of international corporate debt securities. This issuance was also geographically concentrated: European firms accounted for 85 percent of all telecoms issues.

**Table 2.3. Outstanding Amounts and Net Issues of International Debt Securities by Currency of Issue<sup>1</sup>**  
*(In billions of U.S. dollars)*

Currency	Amounts Outstanding											Net Issues							
											2001								
	1993	1994	1995	1996	1997	1998	1999	2000	Q1	Q1	1993	1994	1995	1996	1997	1998	1999	2000	Q1
U.S. dollar	745.8	815.6	881.9	1,124.8	1,448.5	1,858.5	2,401.8	2,971.8	3,115.8	31.5	69.8	66.3	242.7	323.8	410.0	544.6	570.0	144.0	
Japanese yen	267.6	383.7	444.0	472.1	454.9	479.9	527.9	502.2	451.6	33.8	83.8	79.3	80.6	32.9	-24.8	-8.2	31.1	-12.2	
ECU/euro <sup>2</sup>	92.6	90.9	90.4	74.3	65.2	158.8	1,489.3	1,826.2	1,868.4	...	-10.1	-6.7	-12.4	-1.3	87.0	533.9	443.4	135.1	
Selected euro member currencies																			
Deutsche mark	192.0	242.5	311.5	338.1	337.9	436.8	n.a.	n.a.	n.a.	31.2	27.3	49.7	51.9	44.6	71.3	n.a.	n.a.	n.a.	
French franc	91.6	129.7	146.2	165.2	177.7	219.3	n.a.	n.a.	n.a.	34.5	26.4	4.4	28.9	33.9	29.3	n.a.	n.a.	n.a.	
Italian lira	37.4	55.8	66.0	92.3	112.1	137.2	n.a.	n.a.	n.a.	13.0	17.1	8.6	23.9	32.2	17.2	n.a.	n.a.	n.a.	
Netherlands guilder	44.9	65.4	83.1	93.2	93.3	120.6	n.a.	n.a.	n.a.	7.9	14.5	12.7	17.0	12.7	19.7	n.a.	n.a.	n.a.	
Spanish peseta	10.6	10.7	13.2	18.4	21.3	23.6	n.a.	n.a.	n.a.	3.5	-0.7	1.4	6.3	5.6	1.0	n.a.	n.a.	n.a.	
Belgian franc	2.2	2.3	4.2	13.1	12.9	9.9	n.a.	n.a.	n.a.	-0.4	-0.3	1.9	9.3	1.7	-4.1	n.a.	n.a.	n.a.	
Pound sterling	149.1	171.5	177.4	225.8	267.1	323.9	393.8	458.2	453.9	31.7	13.9	7.5	29.7	46.8	55.0	79.0	94.5	15.4	
Canadian dollar	80.9	83.2	83.3	76.2	67.0	55.1	56.0	51.0	46.8	20.5	7.1	-2.2	-6.8	-6.3	-7.9	-2.3	-2.9	-1.9	
Swedish krona	3.3	4.6	5.1	5.1	4.3	7.6	7.4	8.0	7.6	0.6	0.9	0.0	0.2	-0.2	3.4	0.2	1.4	0.3	
Swiss franc	146.7	156.7	179.8	152.3	139.0	154.2	136.8	133.0	124.9	-2.3	-8.1	0.3	-1.7	-2.5	7.0	3.9	-0.9	-1.3	
Other	51.0	65.6	86.4	103.6	108.1	120.7	98.7	100.5	99.7	-8.0	6.9	18.0	19.2	24.0	12.7	12.8	11.6	4.4	
Total	1,915.7	2,278.2	2,572.5	2,954.5	3,309.3	4,106.1	5,111.7	6,050.9	6,168.7	197.5	248.5	241.2	488.8	547.9	676.8	1,163.9	1,148.2	283.8	

 Source: BIS, *International Banking and Financial Market Developments* (various issues).

<sup>1</sup>Excludes money market instruments.

<sup>2</sup>Prior to 1999, the underlying data refer to the European Currency Unit (ECU); from 1999 onward, the underlying data refer to the euro.

**Table 2.4. Announced International Syndicated Credit Facilities by Nationality of Borrowers**  
(In billions of U.S. dollars)

	1993	1994	1995	1996	1997	1998	1999	2000	1999				2000				2001
									Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
All countries	292.7	501.9	703.0	839.3	1,080.6	905.3	1,025.9	1,465.7	189.6	284.6	265.4	286.2	261.8	373.9	424.3	405.7	253.3
Industrial countries	252.7	442.5	609.3	729.5	907.6	821.1	960.0	1,332.1	178.4	263.0	251.4	267.3	245.2	332.3	389.9	364.8	227.1
of which:																	
United States	203.3	327.6	399.8	495.9	623.1	585.1	625.4	804.8	125.7	185.2	164.6	149.8	167.9	242.7	192.9	201.5	159.4
Japan	0.7	2.6	3.5	6.8	6.0	11.4	15.3	17.3	5.0	6.0	2.7	1.7	8.3	2.9	2.3	3.8	7.9
Germany	1.0	1.3	13.0	7.7	10.9	13.1	49.3	43.7	1.3	3.5	26.3	18.2	2.5	7.0	12.1	22.2	4.1
France	5.9	6.2	19.2	22.6	40.6	16.9	32.9	72.1	7.8	6.6	3.9	14.7	8.8	9.2	42.3	11.8	12.8
Italy	2.1	5.4	15.4	4.7	9.3	6.3	15.5	36.3	0.8	5.9	0.8	7.9	1.4	5.7	19.5	9.8	5.0
United Kingdom	13.5	26.8	54.2	64.3	101.3	75.9	90.5	135.4	18.1	18.1	26.7	27.6	18.0	27.3	54.3	35.8	11.7
Canada	7.5	16.0	24.2	27.0	41.2	41.4	25.9	39.8	5.0	8.2	7.1	5.5	6.1	10.1	9.4	14.2	3.6

Source: BIS, *International Banking and Financial Market Developments* (various issues).

tional securities rose to a record of nearly \$50 billion. Average deal sizes in the dollar and euro segments rose significantly in 2000, reflecting issuers' increasing needs for capital, a broadening global investor base, and demand for secondary market liquidity. Following the 1999 surge of euro-denominated issues, issuers increasingly favored the U.S. dollar.

Activity in the international syndicated loan market surged by more than 40 percent in 2000, boosted by strong M&A activity and heavy loan demand by telecoms firms (Table 2.4). Announced M&A-related transactions rose by 22 percent to \$214 billion and syndicated credits to telecoms tripled to \$256 billion. The surge in borrowing by European telecoms during the second half of the year mainly took the form of bridge loans as firms delayed tapping the securities markets. Syndicated lending slowed sharply in the first quarter of 2001, as borrowing by telecoms fell and banks tightened conditions for supplying backup and standby facilities. In recent years, deals have become larger and have increasingly taken the form of bridge loans and standby facilities; average maturities have fallen from six years in 1992 to about three years in 2000.

## Derivatives Markets

Outstanding notional amounts in global over-the-counter (OTC) derivatives markets continued to grow, while outstandings on organized exchanges declined (Tables 2.5–2.7). In the 18 months to December 2000, notional principal in global OTC derivatives markets grew by about 17 percent to \$95 trillion, while notional principal on organized exchanges declined by about 8 percent to \$14 trillion.<sup>19</sup> (However, notional principal rebounded strongly in the first quarter of 2001.) Gross market values rose in most segments of the OTC derivatives markets, accompanying the increase in notional principal. Growth in OTC derivatives activity was mainly attributable to the continued rapid expansion of interest rate contracts, which reflected growing corporate bond markets, increased reliance on swaps for hedging, increased interest rate uncertainty around the end of 2000 (as reflected in option implied volatilities), and (in Japan) increased yield volatility and convexity risk.<sup>20</sup> Foreign exchange contracts increased moderately, although contracts involving the euro rebounded by 28 percent in 2000 along with rising issuance of euro-denominated securities.

<sup>19</sup>Notional principal is the reference amount for payments in derivatives contracts.

<sup>20</sup>Demand to receive fixed rates and pay floating rates on swaps may have put downward pressure on fixed swap rates, compressing swap spreads.

Convexity refers to the nonlinear relationship between changes in yields and associated changes in bond prices. Because of convexity, at low interest rates—such as are currently prevailing in Japan—small changes in interest rates may have large effects on bond prices.

**Table 2.5. Exchange-Traded Derivatives: Notional Principal Amounts Outstanding and Annual Turnover**

	1987	1988	1989	1990	1991	1992	1993	1994
	<i>(In billions of U.S. dollars)</i>							
<b>Notional principal amounts outstanding</b>								
Interest rate futures	487.7	895.4	1,200.8	1,454.5	2,156.7	2,913.0	4,960.4	5,807.6
Interest rate options	122.6	279.2	387.9	599.5	1,072.6	1,385.4	2,362.4	2,623.6
Currency futures	14.6	12.1	16.0	17.0	18.3	26.5	34.7	40.4
Currency options	59.5	48.0	50.2	56.5	62.9	71.1	75.6	55.6
Stock market index futures	17.8	27.1	41.3	69.1	76.0	79.8	110.0	127.7
Stock market index options	27.7	42.9	70.7	93.7	132.8	158.6	232.5	242.8
<b>Total</b>	<b>729.9</b>	<b>1,304.8</b>	<b>1,767.1</b>	<b>2,290.7</b>	<b>3,520.1</b>	<b>4,634.5</b>	<b>7,775.7</b>	<b>8,897.7</b>
North America	578.1	951.7	1,155.8	1,268.5	2,151.8	2,694.7	4,361.4	4,823.9
Europe	13.3	177.7	251.2	461.5	710.8	1,114.4	1,778.0	1,831.8
Asia-Pacific	138.5	175.4	360.0	560.5	657.0	823.5	1,606.0	2,171.8
Other	0.0	0.0	0.1	0.2	0.5	1.9	30.3	70.3
	<i>(In millions of contracts traded)</i>							
<b>Annual turnover</b>								
Interest rate futures	145.7	156.4	201.0	219.1	230.9	330.1	427.0	628.6
Interest rate options	29.3	30.5	39.5	52.0	50.8	64.8	82.9	116.6
Currency futures	21.2	22.5	28.2	29.7	30.0	31.3	39.0	69.7
Currency options	18.3	18.2	20.7	18.9	22.9	23.4	23.8	21.3
Stock market index futures	36.1	29.6	30.1	39.4	54.6	52.0	71.2	109.0
Stock market index options	139.1	79.1	101.7	119.1	121.4	133.9	144.1	197.5
<b>Total</b>	<b>389.6</b>	<b>336.3</b>	<b>421.2</b>	<b>478.3</b>	<b>510.5</b>	<b>635.6</b>	<b>788.0</b>	<b>1,142.9</b>
North America	318.3	252.2	287.9	312.3	302.7	341.4	382.3	513.5
Europe	35.9	40.8	64.4	83.0	110.5	185.0	263.5	398.0
Asia-Pacific	30.0	34.4	63.6	79.1	85.8	82.8	98.4	131.9
Other	5.5	8.9	5.3	3.9	11.6	26.3	43.7	99.4

Source: BIS, *International Banking and Financial Market Developments* (various issues).

In Europe, the introduction of the euro and a shift of organized exchange trading of long-term interest rate derivatives from London to Frankfurt have brought increased reliance on the German government securities market for hedging interest rate risk. The 1998 merger of Deutsche Termin Börse and the Swiss Options and Financial Futures Exchange into Eurex preceded the creation of Europe's most actively traded interest rate contracts—the euro-bund and euro-bobl futures—and made Eurex the world's largest derivatives exchange. Trading of the futures contracts has increased to the point where open interest often exceeds the amount

of outstanding underlying bonds, which, along with shortcomings in the repurchase agreement (repo) market, provides conditions conducive to squeezes. For example, prior to the expiration of the March 2001 bobl contract, open interest was almost twice as large as the deliverable basket of underlying securities, which led to a significant squeeze (see Box 4.5 in Chapter IV).<sup>21</sup>

Recent fluctuations in a gross leverage indicator for the top 25 U.S. commercial banks are consistent with anecdotal evidence about leveraging activities of market participants in the derivatives markets (Figure 2.12).<sup>22</sup> For example, the indicator tracks the buildup of leverage in

<sup>21</sup>A delivery obligation arising out of a short position in a euro-bobl futures contract may only be satisfied by the delivery of specific debt securities—namely, German federal bonds (Bundesanleihen) and German federal debt obligations (Bundesobligationen)—with a remaining term upon delivery of 4½ to 5½ years. The debt securities must have a minimum issue amount of €2 billion.

<sup>22</sup>The indicator is equal to the ratio of balance-sheet assets and notional amounts of outstanding derivatives contracts to regulatory capital (see Breuer, 2000). Because relevant data are scarce, aggregate off-balance-sheet leverage of major banks can only be approximated for select countries.

1995	1996	1997	1998	1999	2000	2000				2001
						Q1	Q2	Q3	Q4	Q1
<i>(In billions of U.S. dollars)</i>										
5,876.2	5,979.0	7,580.8	8,019.9	7,913.9	7,891.9	8,370.9	8,318.4	7,966.8	7,891.9	8,760.7
2,741.8	3,277.8	3,639.8	4,623.5	3,755.5	4,734.2	3,684.9	3,994.2	3,660.8	4,734.2	6,590.8
33.8	37.7	42.3	31.7	36.7	74.4	70.7	31.7	61.0	74.4	74.1
120.4	133.1	118.6	49.2	22.4	21.4	22.2	19.1	21.6	21.4	25.4
172.4	195.8	211.4	290.7	334.3	393.2	339.2	317.0	361.2	393.2	453.5
338.3	394.9	810.0	916.8	1,458.9	1,187.1	1,372.3	1,237.4	1,483.9	1,187.1	1,858.7
9,282.8	10,018.1	12,402.9	13,931.7	13,521.6	14,302.3	13,860.1	13,917.7	13,555.3	14,302.3	17,763.3
4,852.4	4,840.7	6,349.1	7,360.6	6,933.2	8,241.0	7,500.3	7,519.2	7,435.2	8,241.0	11,135.7
2,241.9	2,828.5	3,587.8	4,401.0	3,955.2	4,183.5	3,884.0	3,797.6	3,723.7	4,183.5	4,837.4
1,990.1	2,154.0	2,229.9	1,870.2	2,383.7	1,592.2	2,211.4	2,324.0	2,086.6	1,592.2	1,548.7
198.4	195.0	236.1	300.0	249.6	285.6	264.4	276.9	309.8	285.6	241.5
<i>(In millions of contracts traded)</i>										
560.6	611.7	701.1	759.5	672.2	780.7	209.5	211.9	180.4	178.9	264.8
225.1	150.8	116.5	129.5	117.7	107.5	29.7	29.0	22.6	26.2	38.0
99.4	73.4	73.3	54.2	36.8	43.2	11.0	10.6	10.4	11.2	11.9
23.0	26.1	20.9	11.9	6.6	6.9	1.5	2.0	1.6	1.8	2.4
114.6	93.5	115.6	177.6	204.3	223.4	56.5	52.8	51.3	62.7	73.2
186.9	171.7	177.6	194.4	321.9	480.9	109.0	109.2	113.3	149.3	163.8
1,209.5	1,127.5	1,205.1	1,327.1	1,359.4	1,642.4	417.3	415.5	379.6	430.1	554.0
454.2	427.5	462.6	529.0	461.8	460.3	129.3	119.4	96.7	114.9	157.3
354.1	391.1	482.2	525.1	603.7	716.4	200.0	191.6	160.6	164.2	228.4
126.0	115.7	126.5	170.7	207.3	331.0	59.9	70.7	87.3	113.1	129.8
275.2	193.2	133.8	102.3	86.6	134.7	28.1	33.8	35.0	37.9	38.5

early 1998 and the reduction in leverage after the near-collapse of the major hedge fund Long-Term Capital Management (LTCM) in October 1998.<sup>23</sup> According to the indicator, leverage rose again in the fourth quarter of 2000.

Although small compared to the more mature OTC derivatives segments, the market for credit derivatives is growing rapidly. A recent survey by the British Bankers Association estimates that in 2000 the global credit derivatives market grew by 50 percent to \$893 billion, representing a five-fold increase since 1997. Recent credit strains in the telecoms sector reportedly boosted the demand for instruments to hedge credit risk and contributed to this growth.<sup>24</sup> The market remains geographically concentrated—nearly half of all transactions originate in London—but

products are becoming more diverse as the share of the most liquid, actively traded “plain vanilla” instruments, such as credit default products and total return swaps, declines. In addition, participation in the market is broadening, improving its depth but also raising questions about whether new participants fully understand the attendant risks. Insurance companies are now the largest net sellers of credit protection, accounting for 23 percent of sales and 7 percent of purchases. Supervisors, regulators, and some market participants welcome the increased potential to distribute credit risk among a larger set of institutions, but nonetheless remain concerned about the lack of transparency and legal and other operational risks. Advances in documentation, such as the 1999 International Swaps

<sup>23</sup>Due to the quarterly frequency of the data and reporting lags, there may not be a precise relationship between events and the observed leverage indicator.

<sup>24</sup>See “Unburdening” (2001).

**Table 2.6. Global Over-the-Counter Derivatives Markets: Notional Amounts and Gross Market Values of Outstanding Contracts<sup>1</sup>***(In billions of U.S. dollars)*

	Notional Amounts				Gross Market Values			
	End-Jun. 1999	End-Dec. 1999	End-Jun. 2000	End-Dec. 2000	End-Jun. 1999	End-Dec. 1999	End-Jun. 2000	End-Dec. 2000
<b>Total</b>	<b>81,462</b>	<b>88,202</b>	<b>94,008</b>	<b>95,199</b>	<b>2,627</b>	<b>2,862</b>	<b>2,572</b>	<b>3,183</b>
<b>Foreign exchange</b>	<b>14,899</b>	<b>14,344</b>	<b>15,494</b>	<b>15,666</b>	<b>582</b>	<b>662</b>	<b>578</b>	<b>849</b>
Outright forwards and forex swaps	9,541	9,593	10,504	10,134	329	352	283	469
Currency swaps	2,350	2,444	2,605	3,194	192	250	239	313
Options	3,009	2,307	2,385	2,338	61	60	55	67
<b>Interest rate<sup>2</sup></b>	<b>54,072</b>	<b>60,091</b>	<b>64,125</b>	<b>64,668</b>	<b>1,357</b>	<b>1,304</b>	<b>1,230</b>	<b>1,426</b>
Swaps	38,372	43,936	47,993	48,768	1,222	1,150	1,072	1,260
Forward rate agreements	7,137	6,775	6,771	6,423	12	12	13	12
Options	8,562	9,380	9,361	9,476	123	141	145	154
<b>Equity-linked</b>	<b>1,511</b>	<b>1,809</b>	<b>1,645</b>	<b>1,891</b>	<b>244</b>	<b>400</b>	<b>293</b>	<b>289</b>
Options	1,313	1,527	1,306	1,555	193	320	231	229
Forwards and swaps	198	283	340	335	52	80	62	61
<b>Commodity<sup>3</sup></b>	<b>444</b>	<b>548</b>	<b>584</b>	<b>662</b>	<b>44</b>	<b>60</b>	<b>80</b>	<b>133</b>
Gold	192	243	261	218	23	23	19	17
Other	252	305	323	445	22	38	61	116
Forwards and swaps	127	163	168	248	...	...	...	...
Options	125	143	155	196	...	...	...	...
<b>Other<sup>4</sup></b>	<b>10,537</b>	<b>11,408</b>	<b>12,159</b>	<b>12,313</b>	<b>400</b>	<b>436</b>	<b>392</b>	<b>485</b>
<i>Memorandum items:</i>								
Gross credit exposure <sup>5</sup>	n.a.	n.a.	n.a.	n.a.	1,119	1,023	937	1,080
Exchange-traded derivatives	15,501	13,522	13,918	14,302	...	...	...	...

Source: BIS (2001a, 2001b).

<sup>1</sup>All figures are adjusted for double-counting. Notional amounts outstanding have been adjusted by halving positions vis-à-vis other reporting dealers. Gross market values are calculated as the sum of the total gross positive market value of contracts and the absolute value of the gross negative market value of contracts with nonreporting counterparties.

<sup>2</sup>Single-currency contracts only.

<sup>3</sup>Adjustments for double-counting are estimated.

<sup>4</sup>Estimated positions of nonreporting institutions.

<sup>5</sup>Gross market values adjusted for legally enforceable bilateral netting agreements.

and Derivatives Association (ISDA) standard credit derivatives confirmation, may alleviate operational risks. However, a variety of other issues, such as a standard definition of the event of default, still needs to be resolved.

The hedge fund industry—which includes important participants in the OTC derivatives markets—appears to have experienced some noteworthy changes during the past two years. Partly as a result of these changes, activities in OTC derivatives markets and some of the underlying markets have become more highly concentrated.

Moreover, OTC derivatives and underlying markets are widely seen as less liquid than they were in the mid- to late-1990s.<sup>25</sup> This applies to advanced country markets as well as emerging debt and foreign exchange markets. More specifically, five main recent developments are relevant.<sup>26</sup> First, hedge funds recorded, on average, modest positive returns on capital under management during the past year, outperforming most of the major market indices. Second, the number of hedge funds (and, to a lesser extent, total capital under management) has rebounded from the

<sup>25</sup>The euro-area interest rate derivatives markets—which clearly benefited from the introduction of the euro—are a key exception.

<sup>26</sup>The following summarizes the main conclusions of an update on the hedge fund industry provided by the IMF's capital markets team to the Financial Stability Forum's Working Group on Highly Leveraged Institutions. See Financial Stability Forum (2001).

**Table 2.7. Global Over-the-Counter Derivatives Markets: Notional Amounts and Gross Market Values of Outstanding Contracts by Counterparty, Remaining Maturity, and Currency Composition<sup>1</sup>***(In billions of U.S. dollars)*

	Notional Amounts				Gross Market Values			
	End-Jun. 1999	End-Dec. 1999	End-Jun. 2000	End-Dec. 2000	End-Jun. 1999	End-Dec. 1999	End-Jun. 2000	End-Dec. 2000
<b>Total</b>	<b>81,462</b>	<b>88,203</b>	<b>94,008</b>	<b>95,199</b>	<b>2,627</b>	<b>2,862</b>	<b>2,572</b>	<b>3,183</b>
<b>Foreign exchange</b>	<b>14,899</b>	<b>14,344</b>	<b>15,494</b>	<b>15,666</b>	<b>582</b>	<b>662</b>	<b>578</b>	<b>849</b>
By counterparty								
With other reporting dealers	5,464	5,392	5,827	5,729	200	214	168	271
With other financial institutions	6,429	6,102	6,421	6,597	246	281	242	357
With nonfinancial customers	3,007	2,850	3,246	3,340	136	167	168	222
By remaining maturity								
Up to one year <sup>2</sup>	12,444	12,140	13,178	12,888	...	...	...	...
One to five years <sup>2</sup>	1,772	1,539	1,623	1,902	...	...	...	...
Over five years <sup>2</sup>	683	666	693	876	...	...	...	...
By major currency <sup>3</sup>								
U.S. dollar	13,181	12,834	13,961	14,073	519	581	518	771
Euro	4,998	4,667	5,863	5,981	206	239	242	361
Japanese yen	4,641	4,236	4,344	4,254	171	262	157	274
Pound sterling	2,281	2,242	2,479	2,391	63	55	76	82
Other	4,699	4,709	4,342	4,631	204	187	162	212
<b>Interest rate<sup>4</sup></b>	<b>54,072</b>	<b>60,091</b>	<b>64,125</b>	<b>64,668</b>	<b>1,357</b>	<b>1,304</b>	<b>1,230</b>	<b>1,426</b>
By counterparty								
With other reporting dealers	27,059	30,518	32,208	31,494	634	602	560	638
With other financial institutions	21,149	24,012	25,771	27,048	559	548	518	610
With nonfinancial customers	5,863	5,562	6,146	6,126	164	154	152	179
By remaining maturity								
Up to one year <sup>2</sup>	20,287	24,874	25,809	24,107	...	...	...	...
One to five years <sup>2</sup>	21,985	23,179	24,406	25,923	...	...	...	...
Over five years <sup>2</sup>	11,800	12,038	13,910	14,638	...	...	...	...
By major currency								
U.S. dollar	16,073	16,510	17,606	19,421	337	376	367	486
Euro <sup>5</sup>	17,483	20,692	22,948	21,311	584	492	467	477
Japanese yen	10,207	12,391	12,763	13,107	192	232	207	232
Pound sterling	4,398	4,588	4,741	4,852	103	94	84	113
Other	5,910	5,910	6,068	5,976	141	110	105	119
<b>Equity-linked</b>	<b>1,511</b>	<b>1,809</b>	<b>1,645</b>	<b>1,891</b>	<b>244</b>	<b>400</b>	<b>293</b>	<b>289</b>
<b>Commodity<sup>6</sup></b>	<b>444</b>	<b>548</b>	<b>584</b>	<b>662</b>	<b>44</b>	<b>60</b>	<b>80</b>	<b>133</b>
<b>Other<sup>7</sup></b>	<b>10,537</b>	<b>11,408</b>	<b>12,159</b>	<b>12,313</b>	<b>400</b>	<b>436</b>	<b>392</b>	<b>485</b>

Sources: BIS (2001a, 2001b).

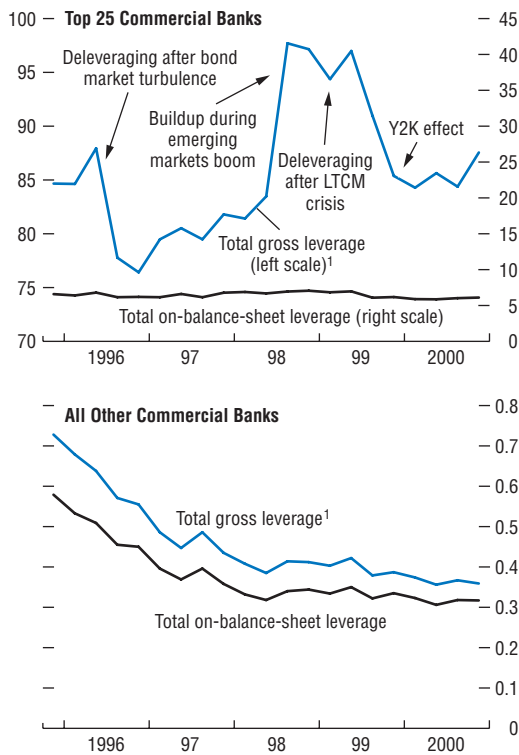
<sup>1</sup>All figures are adjusted for double-counting. Notional amounts outstanding have been adjusted by halving positions vis-à-vis other reporting dealers. Gross market values are calculated as the sum of the total gross positive market value of contracts and the absolute value of the gross negative market value of contracts with nonreporting counterparties.<sup>2</sup>Residual maturity.<sup>3</sup>As both currency sides of each foreign exchange transaction are counted, the currency breakdown sums to twice the aggregate. Data for euro before end-June 1999 refer to legacy currencies of the euro.<sup>4</sup>Single-currency contracts only.<sup>5</sup>Data before end-June 1999 refer to legacy currencies of the euro.<sup>6</sup>Adjustments for double-counting are estimated.<sup>7</sup>Estimated positions of nonreporting institutions.

contraction during late 1998 and 1999. Growth in the industry is strong, with an acceleration in growth in Europe and, to a lesser extent, Asia. The limited information available on hedge fund activities, including press reports, suggests

that the main sources of inflows to hedge funds have been pension funds, insurance companies, and major banking institutions. Investment allocations by these investors still appear to represent a very small percentage of portfolio assets.



**Figure 2.12. United States: Banks' Total Gross and On-Balance-Sheet Leverage Ratios**



Sources: United States, Office of the Comptroller of the Currency; and IMF staff calculations.

<sup>1</sup>Total gross leverage equals assets plus notional amounts outstanding as a percentage of regulatory capital. Regulatory capital refers to Tier 1 plus Tier 2 capital.

Third, the average size of hedge funds probably decreased. This was mainly due to the closure of several very large hedge funds in 2000. Closures seem to be based on two considerations: a re-assessment of the risk-adjusted expected returns on large directional positions on asset prices; and the perception that increased scrutiny of hedge fund investments would adversely affect potential returns. Fourth, as expected by market observers, market discipline of hedge funds appears to have increased since the near-collapse of LTCM. However, disclosure of investment strategies and positions by hedge funds, even to investors, remains very limited. Fifth, overall leverage within the industry has probably fallen.

### Developments in Major Banking Systems

Despite the global slowdown and deteriorating credit quality among corporate borrowers, banks in the United States and the major countries in Europe generally performed solidly in 2000 and appeared to remain in good financial condition as credit expanded.<sup>27</sup> Some large banks, especially in Europe, had significant telecoms exposures but, as of May 2001, regulators and the major credit rating agencies saw the banks as adequately managing these exposures. Banking consolidation continued, partly in response to competitive pressures in wholesale finance and asset management. In Japan, banks continued to struggle with low profitability and substantial bad debts. Falling equity prices reinforced concerns about bank capitalization and prompted the authorities to announce measures to address bad debt problems and to reduce bank equity exposures.

U.S. banks appeared to be more robust than prior to previous downturns and seemed well enough capitalized to weather the ongoing deterioration in credit quality. In 2000, as U.S. economic growth slowed, the fraction of nonperforming commercial and industrial loans rose by

<sup>27</sup>Among the larger banking systems, rapid credit growth and accompanying property price inflation were most notable in the Netherlands.

50 percent to 1.7 percent (well below the 4.3 percent recorded in 1991, at the end of the last recession). In response, banks increased provisions and sharply tightened lending standards.<sup>28</sup> Lending continued to expand and the growth of consumer lending picked up. U.S. commercial banks' return on equity (ROE) declined from 15.6 percent to 13.7 percent as growth in non-interest income slowed sharply. Rating agencies and supervisors view the U.S. banking system as financially strong. In 2000, for example, commercial banks had an average risk-based capital ratio of 12 percent and supervisors classified 98 percent of the banks as "well capitalized."

European banks generally reported higher or stable profits and remained well capitalized. Banks have acquired significant telecoms exposures by financing roughly \$400 billion in telecoms-related M&A activity and \$125 billion in purchases of "third generation" telecoms licenses. As of end-April 2001, total syndicated loan commitments (drawn and undrawn) of all international banks to European telecoms operators and equipment manufacturers totaled about \$180 billion. Official concerns about the size of telecoms exposures were reflected in public statements by regulatory authorities including the U.K. Financial Services Authority (FSA) and the French Banking Commission. Nevertheless, as of mid-2001 rating agencies, supervisors, and bank analysts generally believed that European banks were managing these exposures effectively and did not see them as a major risk for two reasons. First, the bulk of exposures are to highly rated national telecoms companies that have solid fundamentals. Second, banks have been able to reduce and diversify these exposures by securitizing and selling telecoms loans and by encouraging telecoms firms to substitute market funding for loans.

French banks performed well in 2000, as several large banks reaped considerable profits from wholesale finance and asset management. Average ROE for the five largest private banks

rose from about 13 percent to 15 percent and was higher for banks with strong wholesale franchises. ROE was also boosted by low provisions, which reflected very low nonperforming loan (NPL) ratios—a legacy of more cautious lending following France's real estate crisis in the mid-1990s. At the same time, the French Banking Commission became concerned that banks might be underprovisioning to increase profits. The major French banks were well capitalized, with capital ratios stable in the 11 to 13 percent range. Consolidation among French banks paused, although one large French bank was acquired by a major foreign bank in a friendly takeover.

Top German banks' average ROE in 2000 was broadly unchanged at about 8 percent after adjusting for one-time capital gains from sales of cross-shareholdings. However, the best-performing banks recorded adjusted ROEs of about 12 percent. Rating agencies and German supervisors regard the German banking system—with few exceptions—as sound. The top four banks had capital ratios of 10–13 percent and NPL ratios of 2–3 percent. Faced with strong competition in retail banking from the many smaller savings banks and cooperative banks, large banks continued to refocus on wholesale finance and asset management. This shift in focus was facilitated by tax law changes that reduced the tax burden of unwinding cross-shareholdings among financial institutions and helped to move the German banking system toward the bancassurance model. One top-four bank merged with the largest German insurance company, and another bank strengthened its ties with an insurance company.

ROE for the six major private banks in Italy rose by over 2 percentage points to about 15 percent in 2000, reflecting strong retail, asset management, and corporate lending franchises. Some individual banks achieved especially strong performances by successfully focusing on developing strong franchises and reducing nonperforming loans, including through securitization. Between 1998 and 2000, the six major banks cut NPL ratios nearly in half to 4 percent

<sup>28</sup>See United States, Board of Governors of the Federal Reserve System (2000).

and raised their capital ratios modestly to around 10 percent.

Spanish banks were strongly profitable in 2000, as ROE for Spanish credit institutions rose from 19 percent to 22 percent. Spanish banks also had robust asset quality. The NPL ratio stood at 1.1 percent at the end of 2000; in addition, provisions covered 166 percent of impaired assets. They were also well capitalized. The overall capital ratio stood at 11.1 percent, of which 9.1 percent corresponded to Tier 1 capital.

Average ROE for the five largest U.K. banks held constant at about 19 percent in 2000, reflecting highly profitable retail banking activities. In addition, loan credit quality remained solid as economic growth picked up, permitting a low level of provisioning. The top banks' average NPL ratio declined moderately to about 2 percent. U.K. banks remained well capitalized, with the average capital ratio for the five largest banks stable in 2000 at just above 12 percent.

In both the United States and Europe, larger internationally active banks have sought to diversify into higher-margin, fee-generating activities in an effort to raise ROE. At the same time, competition in wholesale finance is eroding margins. Competitive pressures may also have driven banking consolidation as banks have sought to capture economies of scale and scope. The opportunities presented by the rapid expansion of euro-area corporate securities markets have accelerated the shift by euro-area banks into wholesale finance. European corporations still rely much more heavily on loans than on securities for financing needs, however, and euro-area banks that underwrite market financing often also continue to function as the client's "Hausbank"—for example, by maintaining a long-term lending relationship and providing backup financing. Meanwhile, European banks have relied more heavily on credit-risk transfer

vehicles (such as asset-backed securitization and collateralized loan obligations) to manage their credit and balance-sheet risks. The shift from lending to market finance may also have influenced the balance of risks in the U.S. and European financial systems. For example, while the distribution of financial risk may be diversified, it may also be less transparent.

Japanese bank performance remained weak in 2000.<sup>29</sup> Based on fiscal year 2000 interim results, ROE for Japanese city banks was broadly unchanged at about 3 percent, reflecting high provisioning and narrow interest margins.<sup>30</sup> Profits at regional banks were also adversely affected by provisioning. Major Japanese banks reported an average capital ratio of 12.3 percent in September 2000, but more than half of Tier 1 capital consisted of public capital, deferred taxes, and preferred equity instruments. In addition, some private analysts estimated that uncovered exposure to future losses remained large relative to capital—for major banks, equivalent to roughly half of aggregate Tier 1 capital, and for regional banks, over 100 percent of Tier 1 capital. In March 2001, as the stock market slide heightened market concerns about the stability of the Japanese banking system, the Japanese authorities announced a package of measures intended to stabilize and revive the banking sector. This package included measures to accelerate the disposal of bad loans and to reduce bank equity market exposure through government purchases of bank equity holdings. Market participants viewed the measures as falling short of addressing the banking system's fundamental weaknesses.

The consolidated cross-border exposures of mature market banks to emerging market countries is large but fairly well-diversified across countries and regions (Table 2.8).<sup>31</sup> Banking systems in two countries—Germany and Spain—

<sup>29</sup>Annex I discusses the challenges facing Japan's banking and corporate sectors.

<sup>30</sup>Interest income accounts for 40 percent of Japanese banks' total income.

<sup>31</sup>These figures exclude local-currency exposure of local subsidiaries, which may be significant for some banks.

Cross-border exposures to other mature markets have also been highlighted as a potential concern from time to time. For instance, the FSA has registered concerns about the exposure of U.K. banks to U.S. corporations, particularly in the high-tech sector.

**Table 2.8. Mature-Market Bank Exposures to Emerging Markets, End-December 2000**  
(In millions of U.S. dollars)

	United States	Japan	Canada	United Kingdom	Euro Area				
					Total <sup>1</sup>	France	Germany	Italy	Spain
Total cross-border exposure <sup>2</sup>	412,592	943,982	134,563	564,937	3,282,431	611,069	1,395,332	220,378	165,317
Developed countries	277,419	690,345	103,018	392,158	2,621,338	477,498	1,140,280	166,898	100,470
Developing countries	97,347	76,830	18,806	72,975	429,522	82,010	163,191	37,568	55,979
Latin America/Caribbean	56,745	10,427	11,166	25,428	147,001	19,842	36,010	18,695	51,546
of which:									
Argentina	11,155	1,833	...	6,772	39,759	3,076	8,392	5,136	19,019
Mexico	15,184	2,549	2,402	6,167	30,562	4,697	6,188	1,882	12,989
Brazil	14,363	2,851	1,396	6,518	30,373	5,151	9,373	4,477	5,706
Chile	3,683	1,167	1,861	1,042	12,720	2,275	3,232	644	4,751
Europe <sup>3</sup>	10,416	4,660	755	6,858	125,162	12,094	66,659	12,867	1,541
of which:									
Turkey	4,679	2,055	...	2,604	24,547	4,451	13,112	1,649	732
Africa and the Middle East	9,556	6,028	2,283	15,378	62,389	22,908	21,073	3,045	1,824
Asia and Pacific	20,630	55,715	4,602	25,311	94,970	27,166	39,449	2,961	1,068
Offshore Financial Centers	37,826	176,807	12,739	76,867	204,387	47,189	81,261	12,210	7,637
of which:									
Hong Kong SAR	6,205	35,259	2,084	24,186	23,415	7,512	6,473	1,831	119
Singapore	2,952	26,681	2,034	20,052	16,127	4,291	4,784	1,686	66
<i>Memorandum item</i>									
Loans <sup>4</sup>	3,800,712	4,282,714	506,383	1,777,887	8,494,048	966,854	1,582,747	853,421	585,414

Sources: BIS (2001a); and Bankscope database.

<sup>1</sup>Austria, Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands, Portugal, and Spain; omits countries for which data are not available.

<sup>2</sup>Sum of developed countries, developing countries, and offshore financial centers.

<sup>3</sup>Emerging markets and developing countries in Europe.

<sup>4</sup>1999 figures.

have significant exposures to emerging market countries currently under stress (Turkey and Argentina, respectively). In each case, however, these exposure concentrations represent small fractions of outstanding loans. The risks to Spanish and German banks may also be mitigated by the fact that about 10 percent of exposures booked in Argentina and Turkey are actually to counterparties headquartered outside these countries. Finally, much of German banks' Turkish exposure reportedly carries export credit guarantees (shifting the credit risk to the export credit agency and ultimately to the budget).

## International Regulatory and Supervisory Developments

During the year ending May 2001, progress was made on a number of important supervisory

and regulatory fronts, mostly as part of ongoing initiatives. International groupings, such as the Basel Committee on Banking Supervision (BCBS), the International Organization of Securities Commissions (IOSCO), and the Committee on the Global Financial System, issued reports and best practice guidelines on a number of issues, including banks' credit risk management, foreign exchange settlement risk, and core principles for payment and settlement systems (Table 2.9). Regulators also analyzed the implications of financial innovations such as electronic banking and electronic trading. The Financial Stability Forum discussed progress in implementing the recommendations of its working groups on highly leveraged institutions, capital flows, and offshore financial centers. A Group of Ten (G-10) working group studied the potential impact of financial consolidation, particularly on financial risk, and its implications

**Table 2.9. Key International Supervisory and Regulatory Initiatives**

Institution	Initiative/Document	Date
Basel Committee on Banking Supervision	<i>Principles for the Management of Credit Risk; and Best Practices for Credit Risk Disclosure</i>	September 2000
	<i>Supervisory Guidance for Managing Settlement Risk in Foreign Exchange Transactions</i>	September 2000
	<i>Electronic Group Initiatives and White Papers</i>	October 2000
	<i>The New Basel Accord, and supporting documents</i>	January 2001
	<i>Essential Elements of a Statement of Cooperation between Banking Supervisors</i>	May 2001
Basel Committee on Banking Supervision, and International Organization of Securities Commissions	<i>Review of Issues Relating to Highly Leveraged Institutions</i>	March 2001
Committee of Wise Men on the Regulation of European Securities Markets	<i>Final Report of the Committee of Wise Men on the Regulation of European Securities Markets ("Lamfalussy Report")</i>	February 2001
Committee on Payment and Settlement Systems	<i>Core Principles for Systemically Important Payment Systems</i>	January 2001
Committee on Payment and Settlement Systems, and International Organization of Securities Commissions	<i>Recommendations for Securities Settlement Systems</i>	January 2001
Committee on the Global Financial System	<i>The Implications of Electronic Trading in Financial Markets</i>	January 2001
	<i>Collateral in Wholesale Markets: Recent Trends, Risk Management, and Market Dynamics</i>	March 2001
EU Economic and Financial Committee	<i>Report on Financial Crisis Management ("Brouwer II Report")</i>	April 2001
European Commission	<i>Communication on Upgrading the Investment Services Directive</i>	November 2000
	<i>Draft Directive on Financial Collateral Arrangements</i>	March 2001
	<i>Draft Directive on Prudential Supervision of Financial Conglomerates</i>	April 2001
Financial Stability Forum (FSF)	The FSF held its fourth meeting at the BIS. It reviewed progress on the recommendations of the reports on highly leveraged institutions, capital flows, and offshore financial centers.	September 2000
	The FSF held its fifth meeting in Washington and, among other things, discussed a working group report on enhanced disclosure.	March 2001
	<i>Progress in Implementing the Recommendations of the Working Group on Highly Leveraged Institutions (HLIs)</i> , note to the FSF by the Chairman of the HLI Working Group	March 2001
Group of internationally active banks	Agreed on the Wolfsberg anti-money laundering principles	November 2000
Group of Ten, Working Party	<i>Report on Consolidation in the Financial Sector</i>	January 2001
United States	The Commodity Futures Modernization Act of 2000 was enacted. It re-authorized the Commodity Futures Trading Commission (CFTC), created a flexible structure for the regulation of futures trading, introduced single-stock futures, and provided legal certainty for swap contracts.	December 2000

for public policy (Box 2.2). The three most important developments were: the Basel Committee's new proposals on bank capital adequacy; the findings of the Lamfalussy Report on the regulation of European securities markets;

and the European debate on the structure of financial supervision.<sup>32</sup>

<sup>32</sup>Regulatory developments in Japan are discussed in Annex I.

### Box 2.2. The Group of Ten Report on Financial Consolidation

In January 2001, the Group of Ten released the “Ferguson Report” analyzing the effects of consolidation in the financial sector and identifying key areas where consolidation might necessitate policy responses.<sup>1</sup> The scope of the report is broad: it covers the patterns and causes of consolidation; the implications for monetary policy, financial risk, and payment and settlement systems; and the effects on efficiency, competition, and credit flows. This box summarizes the main conclusions of the report regarding the effects of consolidation on financial risk. The report concludes that consolidation has ambiguous effects on financial risks of individual institutions and on systemic risk.

The report finds that the effects on risks facing individual institutions tend to be offsetting: on the one hand, risk is likely to be reduced by the greater diversification that often accompanies consolidation; on the other hand, the report suggests that there appears to be a tendency for consolidated institutions to use diversification gains to invest in riskier assets. Consolidation also tends to increase operational risk by making the risks facing institutions harder to measure, more complex, diverse, and interdependent, thus increasing the potential for risk management errors. Moreover, by making institutions more complex, and particularly if larger institutions are more dependent on financial markets for funding, consolidation can considerably complicate winding them down in the event of insolvency, increasing the risk that the process could become disorderly. To the extent that these institutions are large enough to be systemically significant, this would tend to increase systemic risk.

Consolidation may also affect systemic risk by increasing the interdependence between financial institutions. Compared with smaller institutions, large merged institutions often rely more on market sources of financing, such as inter-

bank markets, and make greater use of financial instruments, such as OTC derivatives, that typically involve credit exposures between large financial institutions. Mergers between banks and other types of financial intermediaries can broaden the potential sources of systemic risk by opening up channels through which problems in nonbank institutions can spill into the banking system. Cross-border consolidation can increase the potential for systemic problems in one financial system to spill over into others.

The issues raised by consolidation differ somewhat among the United States, Europe, and Japan. In the United States, banks’ greater involvement in market activities means that they are more exposed to a rapid deterioration in market conditions. Thus, as they become larger and more complex due to consolidation, the issue of how to unwind them in an orderly fashion if they become insolvent becomes more essential. In Europe, consolidation, in combination with rapid euro-area market integration, is strengthening cross-border interdependencies, possibly increasing the risks arising from differences in regulatory, supervisory, and bankruptcy regimes. As a result, coordination among regulatory and supervisory authorities is becoming more important. In Japan, consolidation is occurring in the context of a fragile banking system. The key issues concern the extent to which consolidation could enable banks to reduce risk through diversification and shrink their balance sheets to improve capitalization.

The report identifies areas where policy measures could mitigate potential adverse effects of consolidation on financial risk. First, to improve crisis prevention and management, cooperation and coordination among central banks, finance ministries, and financial supervisors need to be strengthened both domestically and internationally. Risk should be evaluated not only at the level of the individual institution but also from a “systems perspective,” particularly in regions undergoing rapid cross-border and cross-sectoral consolidation. Second, a deeper understanding of the difficulties of winding down large and complex institutions is

<sup>1</sup>See Group of Ten (2001). The report was prepared by a working group chaired by Roger Ferguson, Vice Chairman of the Board of Governors of the U.S. Federal Reserve System.



**Box 2.2 (concluded)**

needed, including the potential consequences of cross-border differences in bankruptcy, legal, and regulatory regimes. Contingency plans for unwinding complex institutions in an orderly way could help improve crisis management. Third, as institutions become more complex and opaque, greater reliance on risk-based supervision is desirable to strengthen risk management and reduce incentives for excessive risk taking. Fourth, a consensus is needed on how to

deal with potential systemic effects that can arise from problems at non-bank financial institutions, including those that are part of financial conglomerates that contain banks, without exacerbating moral hazard. Finally, to improve market discipline, disclosure needs to be strengthened to make increasingly complex financial institutions more transparent—for example, by developing accounting measures that better reveal the actual risks facing institutions.

**The Proposed New Basel Accord for Bank Capital Adequacy**

On January 16, 2001, the BCBS issued a consultative document for comment with the intention of finalizing the new rules on capital adequacy by the end of the year and implementing them in 2004.<sup>33</sup> The document proposes significant adjustments to the 1988 Basel Accord's treatment of credit risk and operational risk. The new Basel Accord ("Basel II") would be applicable to "significant banks" and would rest on three pillars: pillar 1 is designed to link capital requirements more closely to banking risks; pillar 2 strengthens the supervisory process over capital standards; and pillar 3 seeks to enhance market discipline by improving disclosure standards (Box 2.3).

The new framework is designed to align capital requirements more closely with banks' risk profiles. It puts more responsibility on banks, more emphasis on the supervisory process, and more reliance on market discipline, and, for the first time, introduces capital requirements for operational risk. By providing banks and supervisors with several options for assessing capital adequacy, Basel II would be much more complex than the current capital rules. The new

rules would apply, on a fully consolidated basis, to holding companies of banking groups and are designed to at least maintain the current overall level of regulatory capital in the banking system.

Regulators expect that the new capital adequacy rules will reduce opportunities for regulatory arbitrage. While under the 1988 Accord banks have incentives to sell their high-quality credit exposures, the new rules should reduce these incentives because they raise the risk sensitivity of capital requirements and comprehensively recognize risk mitigation techniques. At the margin, however, Basel II may encourage banks to keep higher quality credit exposures on their balance sheets and securitize lower quality credits. The new proposals will have important implications for some sovereign borrowers—in particular, the risk weight of highly rated non-Organization for Economic Cooperation and Development (OECD) countries would be markedly reduced. The proposed reliance on rating agencies, and particularly the use of internal ratings, could reinforce the procyclicality of capital requirements to the extent that ratings are based on borrowers' current conditions. But more rigorous forward-looking assessments and

<sup>33</sup>See Basel Committee on Banking Supervision (2001). The first consultative paper, Basel Committee on Banking Supervision (1999), was released in June 1999 (see Box 4.1 in IMF, 1999). In view of the numerous comments the Basel Committee received and the range of specifics that still needed to be addressed, on June 25, 2001, the Committee modified the timetable for completion and implementation of the new Accord. The Committee plans to finalize the new rules in 2002 following another round of consultations, with implementation envisaged for 2005.



### Box 2.3. Key Elements of the Proposed New Basel Accord for Bank Capital Adequacy

The proposals for a new Basel Accord that were released by the Basel Committee on Banking Supervision (BCBS) deal with credit and operational risk.<sup>1</sup> The proposals rest on three pillars: minimum capital requirements, enhanced supervisory processes, and better market discipline through more disclosure. The Committee views the principles of the three-pillar approach as applicable to all banks, but expects the new Basel Accord to apply explicitly only to “significant banks.”

*Pillar 1—minimum capital requirements.* The BCBS proposed two approaches to assessing capital requirements for credit risk: a standardized approach and an internal ratings-based (IRB) approach. Under the new standardized approach, banks assign assets into risk-weighting bands based on ratings from eligible external credit assessment institutions, such as rating agencies and export credit agencies (see table).<sup>2</sup> For assigning risk weights to claims on banks, national supervisors have two options.<sup>3</sup> Under option one, claims on banks would receive risk weights that are one category less favorable than those of the banks’ home country sovereigns, with the risk weight capped at 100 percent for banks in countries that are unrated or rated BB+ to B-. Under option two, the risk weights would be determined by the banks’ own external credit ratings.

The current credit conversion factors for off-balance-sheet items would remain unchanged, but the 50 percent ceiling on risk weights of

OTC derivatives would be dropped and the risk weight on business commitments with a maturity of up to one year would be raised from zero to 20 percent. The new approach also substantially refines the treatment of risk mitigation techniques, such as credit derivatives and on-balance-sheet netting, and extends the range of recognized collateral. The treatment of asset securitizations, a key area of regulatory arbitrage, has also been improved.

Banks with advanced risk measurement capabilities, given supervisory approval, can use one of two IRB approaches. In the foundation approach, a bank estimates the probability of default for each of its different internal asset grades, while estimates for other risk components, such as loss given default, are derived from simple standardized supervisory rules. In the advanced approach, banks use their internal estimates for all risk components, including loss given default. These risk components are mapped into risk weights by a formula provided by the Basel Committee. In the foundation approach, all exposures are assumed to have a three-year maturity, while the advanced approach contains a maturity adjustment. A “granularity adjustment” decreases or increases the capital charge depending on whether a bank’s asset portfolio is more or less diversified than average.

The Basel Committee proposes a separate capital charge for operational risk. Proposed approaches range in complexity from a basic indicator approach, in which a single variable such as gross income would serve as a proxy for a bank’s risk exposure, and a standardized approach, in which each business line of a bank would have a separate operational risk indicator, to an internal measurement approach that would allow banks, subject to supervisory approval, to use internal measures of operational risk.

*Pillar 2—enhanced supervisory processes.* Intensified supervisory reviews are intended to ensure that banks have sound internal processes to determine capital adequacy based on careful risk assessments. Reviews would be guided by four

<sup>1</sup>See Basel Committee on Banking Supervision (2001). The 1996 Market Risk Amendment to the 1988 Basel Accord would continue to apply, essentially unchanged.

<sup>2</sup>Under the 1988 Accord, risk weights on sovereign claims are determined by membership in the Organization for Economic Cooperation and Development (OECD)—zero risk weight for members, 100 percent weight for nonmembers.

<sup>3</sup>Currently, all short-term claims on banks (and long-term claims on OECD-incorporated banks) are assigned a 20 percent risk weight, while long-term claims on banks incorporated outside the OECD are weighted at 100 percent.

**Box 2.3 (concluded)****Risk Weights in the Standardized Approach<sup>1</sup>***(In percent)*

	AAA to AA–	A+ to A–	BBB+ to BBB–	BB+ to BB–	B+ to B–	Below B–	Unrated
Sovereigns	0	20	50	100	100	150	100
Banks, option one	20	50	100	100	100	150	100
Banks, option two							
Maturity >3 months	20	50	50	100	100	150	50
Maturity ≤3 months	20	20	20	50	50	150	20
Nonbank corporates	20	50	100	100	150	150	100

<sup>1</sup>A 100 percent risk weight corresponds to an 8 percent capital ratio.

principles: banks must be able to assess their capital in relation to their risk profile; supervisors should evaluate banks' internal capital adequacy assessments and strategies; supervisors should have the ability to require banks to hold capital in excess of the minimum; and supervisors should intervene at an early stage to prevent capital from falling below the minimum levels. The supervisory review would also cover risks that are not specifically included in pillar 1, such as interest rate risk in the banking book.

*Pillar 3—better market discipline through more disclosure.* The third pillar, market discipline, is viewed as supplementing and supporting banking supervision to strengthen the safety and

soundness of the banking system. Disclosure is an integral precondition for effective market discipline. The Basel Committee therefore proposed extensive templates for recommended (in some cases, required) disclosure of critical information that covers the amount of capital, the bank's risk profile, capital adequacy, and internal systems (when an IRB approach is used). All banks would have to make core disclosures, which the Committee considers vital for the basic operation of market discipline, while supplemental disclosures would be important for some, but not all, institutions. Sophisticated, internationally-active banks would be expected to disclose the full range of core and supplementary information.

provisioning practices, as well as effective supervisory processes, might smooth the cyclical volatility of risk weights and capital charges.

Both private market participants and regulators have expressed some concern about the complexity of the proposed internal ratings-based (IRB) approaches. The approaches are generally considered to be very demanding on banks, particularly the requirement that a bank that uses the IRB approach for some of its exposures must adopt the IRB approach across all exposure classes and all significant business units (such as subsidiaries and branches) within a rea-

sonably short period of time. As a result, only very few banks will eventually be able to apply the advanced IRB approach, in which they estimate both probability of default and loss given default. The proposals create incentives for banks to develop more precise risk assessment methods. But the incentives inherent in the IRB approach as currently designed could lead banks that rate credit internally to avoid lower quality credits.<sup>34</sup> These credits would thus tend to be held by banks that are unable to apply IRB approaches and may have less sophisticated risk management.

<sup>34</sup>Capital requirements on low-rated corporate claims would be much higher under the foundation IRB approach than the standardized approach. For example, claims rated B would face a 31 percent capital requirement under the foundation IRB approach compared with 12 percent under the standardized approach (see Jackson, 2001).

A separate capital charge for operational risk would be introduced for the first time. The capital requirement for operational risk is not intended to raise the current overall level of regulatory capital; instead, it is designed to broadly offset the reduction in capital allocated to credit risk that might result from the new rules. The Committee envisages that about 20 percent of the total required capital may need to be held to cover operational risks. But the proposed methods designed to capture operational risk, which vary from a basic indicator approach (based on gross income as a proxy for operational risk) to an internal measurement approach, are some of the least developed parts of the proposed revisions. The Committee therefore intends to conduct further studies to improve the risk sensitivity of the operational risk framework and to find ways to permit the recognition of operational risk mitigation techniques.

Pillar 2—enhanced supervisory review—has two important objectives: to ensure that a bank's capital is consistent with its risk profile and overall strategy, and to facilitate early intervention by supervisors if capital does not provide a sufficient buffer in case a bank experiences financial stress. Enhanced supervision will place substantial demands on bank supervisors, particularly in assessing the banks' internal models and ensuring their consistent implementation, since the proposed rules leave ample scope for supervisory discretion.

Pillar 3—disclosure and market discipline—is meant to support supervisors in two respects. Market data can be useful for supervisory assessments; and market discipline might provide direct incentives to banks to maintain capital at levels consistent with their risk profiles and overall business strategies. Meaningful disclosure is a key precondition for market discipline, and standard loan classifications, provisioning, and accounting rules may be required to ensure international comparability.

Many elements of the latest proposals by the Basel Committee, such as the calibration of the

IRB approaches and the operational risk proposals, reliable impact studies, and harmonized provisioning rules, are still work in progress. The scope of the applicability of Basel II may yet be extended to all banks in all countries by designing a simplified version of the standardized approach.

### **The Lamfalussy Report: Modernizing EU Securities Markets Regulation**

While the integration of financial markets in the European Union (EU) is progressing, key aspects of the regulation of securities markets remain fragmented. Recognizing the potential benefits of a single market for financial services, in July 2000, the EU's Economic and Finance Ministers (ECOFIN Council) established a Committee of Wise Men on the Regulation of European Securities Markets, chaired by Alexandre Lamfalussy. The Committee's report (the Lamfalussy Report), issued in February 2001, concludes that the process of EU decision making constitutes the main obstacle to a single market for financial services.<sup>35</sup> The current decision-making framework is viewed as too slow, too rigid, too complex, and ill-adapted to the pace of global financial market developments.

The Lamfalussy Report proposed an accelerated decision-making and implementation process for European securities regulations that would separate political from technical decisions. At the top level (Level 1), only broad principles ("framework legislation") would be enacted—through the normal EU legislative process that involves co-decisions by the European Commission, the EU Council, and the European Parliament. At the next level (Level 2), a new high-level EU Securities Committee would vote on regulatory rules proposed by the Commission based on these broad principles and would decide on the technical implementation. It would be supported by a new EU Securities Regulators Committee. The extent of technical implementation powers delegated to

<sup>35</sup>See Committee of Wise Men (2001).

the Level 2 procedure (the so-called comitology powers<sup>36</sup>) would be decided on a case-by-case basis by the Council of Ministers and the European Parliament. At Level 3, cooperation between national regulators would be intensified to ensure consistent transposition of the Level 1 and 2 decisions into national legislation and regulation. At Level 4, the enforcement of EU rules by the European Commission would be strengthened.

The Lamfalussy Committee stopped short of recommending a pan-European securities regulator, because basic rules are not harmonized across countries. But the Committee urged strengthened cooperation between European financial market regulators and the institutions in charge of micro- and macro-prudential supervision. It emphasized that there is a cost to the multitude of clearing and settlement systems in Europe but that, for the moment, any solution should be left to market forces.

The report also recommended advancing from 2005 to 2004 the completion of key elements of the European Commission's Financial Services Action Plan, focusing on the following priority areas:

- introducing a single passport for issuers and modernizing listing requirements;
- applying the home country principle (mutual recognition) for wholesale markets and clearly defining codes of conduct for professional investors;
- modernizing rules for investment funds and pension funds;
- adopting international accounting standards; and
- introducing a single passport for recognized stock exchanges.

The Committee's proposals face considerable hurdles. The European Parliament is concerned that the new legislative process could dilute its right of co-decision making. The report addresses these concerns by emphasizing open communication between the European Commission and the European Parliament at every level

of the new legislative process. The Stockholm EU summit in March 2001 approved a revision to the procedural rules that would allow a majority of member states to ask the Commission to reconsider technical regulations drafted for consideration by the new committees.

### The Evolving Framework for Financial Supervision in Europe

Financial globalization, the blurring distinctions between different types of financial activities, and the trend toward financial conglomerates that span commercial banking, investment banking, and insurance has ignited a debate about how to most effectively organize financial supervision. In Europe, the debate centers on three questions. Should national central banks be involved in financial supervision? At the national level, should supervision remain with separate agencies or be consolidated into a single national regulator? Should responsibilities for financial supervision remain national or become pan-European?

The question about the involvement of central banks rests on the relative weights attached to the three key functions of supervision: investor protection, micro-prudential supervision, and macro-prudential oversight. While stand-alone supervisory agencies generally tend to emphasize investor protection and the soundness of individual institutions (micro-prudential supervision), central banks give high priority to systemic stability.

Proponents of independent supervisory authorities see potential conflicts between the objectives of financial stability and monetary policy. The emergence of financial conglomerates that include banks, securities firms, and insurance companies may also argue for separate agencies because the central bank, whose traditional role has been in banking supervision, might not be the best candidate for a single regulator. Assigning supervisory tasks that cover the entire finan-

<sup>36</sup>“Comitology” refers to the delegation of implementing powers by the Council to the Commission for the execution of EU legislation (see Annex 5 in Committee of Wise Men, 2001).

cial system to the central bank, it is argued, could also lead to an undue concentration of power.

Nevertheless, the importance of financial surveillance by central banks is increasing because the nature of financial crises is changing: systemic risks may now be as likely to emerge in financial markets as they are to emerge within financial institutions. In the United Kingdom, the Financial Services Authority (FSA) is the regulator of individual financial institutions, although one of its four statutory objectives is maintaining confidence in the financial system. The Bank of England (BoE) meanwhile is responsible for the stability of the financial system as a whole, although it has an interest in information on individual institutions when they raise systemic concerns.<sup>37</sup> Given that its financial stability role requires surveillance of both domestic and international markets, including the links between individual institutions and financial markets, the BoE has devoted more resources to, and strengthened, its surveillance of the financial system and its work on financial stability. Central banks have reason to claim that they require independent access to prudential information to fulfill their mandates in the area of financial stability. In particular, central banks may regard independent access to information on systemically relevant institutions as essential for crisis prevention and crisis management.<sup>38</sup> For example, during financial crises it is critical that authorities have the necessary information to assess quickly whether a financial institution that requires emergency liquidity assistance is solvent.

For these reasons, euro-area national central banks (NCBs) and the ECB strongly support placing supervisory responsibilities with national central banks. A recent paper by the ECB states that “viewed from a Eurosystem perspective, the attribution of extensive supervisory re-

sponsibilities to national central banks is likely to prove beneficial.”<sup>39</sup> The ECB advocates that the NCBs’ involvement also extend beyond the banking sector since systemic concerns may increasingly stem from large financial conglomerates. To the extent that NCBs would be granted wide-ranging operational involvement in prudential supervision, solutions other than the assignment of direct responsibilities to NCBs could also be effective, in the ECB’s view. Conflict of interest concerns have been alleviated in the euro area by the transfer of monetary jurisdiction from NCBs to the ECB. The ECB also points out that NCBs, which are both national institutions and part of the Eurosystem, might be better positioned to address euro-area supervisory issues than stand-alone national supervisors.

On the second question—whether supervision should remain with separate national agencies or be combined into one agency—the appropriate structure of supervision depends to a large extent on the individual circumstances in each country, including its legal traditions, the structure of the financial sector, and the size and complexity of the markets involved. At the same time, more and more countries are beginning to consider the single-regulator model, which already has been adopted in some Scandinavian countries, Japan, and some other countries. The adoption of the single-regulator framework in the United Kingdom seems to have raised interest in the model, although relevant secondary legislation has not yet been approved and the system has not been tested at times of distress.<sup>40</sup>

If the plans to reorganize financial supervision in Germany proceed as envisaged, the balance of thinking on the continent could shift further in favor of consolidated national supervision. The

<sup>37</sup>In addition, a Tripartite Standing Committee comprising the FSA, the Bank of England, and the Treasury monitors systemic threats and meets at least monthly.

<sup>38</sup>In 10 of the 12 euro-area countries, national central banks are either directly responsible for, or heavily involved in, prudential supervision (see European Central Bank, 2001).

<sup>39</sup>See European Central Bank (2001).

<sup>40</sup>See IMF (1998a), Box 5.9, p. 142. The U.K. FSA is expected to have all the powers of a unified financial services regulator conferred on it, effective November 2001.

German government plans to merge the federal supervisory offices for banking, insurance, and securities. The plan, however, would not strictly follow the single-regulator model. Moreover, owing to features of the German legal system, the new regulatory agency would have less extensive powers than the U.K. FSA. Although the new agency would integrate supervision of banks, securities firms, and insurance companies, the fragmented oversight of stock exchanges by the local state regulators would remain, largely for political reasons. Importantly, the close relationship between the Federal Banking Supervisory Office and the Bundesbank (German central bank) will likely remain a key part of the reorganized framework, although exact arrangements are not yet clear. It is also unresolved whether the Bundesbank's consent in banking policy matters would continue to be required.

As to the question of whether responsibilities for financial supervision should remain national or become pan-European, national central banks and regulators generally oppose a central supervisor at the EU or euro-area level. By its very nature, they point out, supervision is deeply rooted in the diverse national legal and regulatory systems. Therefore, decision making should remain decentralized to reflect the financial architecture in each country. Even European-wide supervision of the largest financial institutions is considered unlikely in the near term because a number of preconditions might need to be met before an international regulator could be considered. For instance, pan-European banks would need to exist and Europe might need to move closer to a federalist structure. However, as a recent report by the EU Economic and Financial Committee (the "Brouwer II Report") indicated, close cross-border coordination might be required, particularly during a crisis at a major financial institution.<sup>41</sup>

A hybrid system akin to the arrangements for supervision of financial holding companies in the United States might be conceivable at the euro-area level. Although the U.S. Federal Reserve, as umbrella supervisor, is expected to rely as much as possible on the examinations by functional regulators (such as other banking regulators or securities regulators), it has the authority under specific circumstances to examine affiliates of a financial holding company.<sup>42</sup> Similarly, in cooperation with national supervisors, the ECB could supervise the largest financial institutions that comprise the core of the euro-area payments system. But such an arrangement would require unanimous EU Treaty amendments that are unlikely any time soon. It would also raise questions about whether the ECB would need more—or less—authority over euro-area banks in this role than the Federal Reserve currently has over functionally regulated institutions in its role as umbrella supervisor.

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<sup>41</sup>See European Union, Economic and Financial Committee (2001), p. 13. Cross-border cooperation may be difficult, since, as the report notes, "[t]he relevant EU directives do not impose an obligation for sharing information in crisis situations" and "certain supervisory authorities do not consider themselves as being entitled to share information on major financial institutions on a regular basis in a multilateral context solely for the purpose of monitoring financial stability."

<sup>42</sup>The Gramm-Leach-Bliley Act, the basis for the U.S. Federal Reserve's role as umbrella supervisor, is described in Box 2.2 in IMF (2000).



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