



II

Developments and Trends in the Mature Markets

Since the last review of developments in international capital markets, the mature markets have been dominated by four related developments: large capital inflows into dollar fixed-income markets; the continued appreciation of the dollar; a convergence of interest rates at relatively low levels—and a compression of yield spreads—even in high-yield corporate and emerging markets; and further advances in the major equity markets. These developments occurred against a background of a stable macroeconomic environment, characterized by widespread convergence to low inflation rates and in some cases price stability, lingering disparities in growth rates, and continued fiscal consolidation. Intermittent periods of market tensions in currency and bond markets were associated with uncertainty about the sustainability of the appreciated value of the dollar, monetary policy, progress toward EMU, and the resolution of financial sector problems in Japan.

Foreign Exchange Markets: Capital Flows and the Rise of the Dollar

During the past twelve months, the key development in the major foreign exchange markets was the rise of the dollar against the deutsche mark and yen. The dollar's ascent occurred in relatively calm markets, interrupted only occasionally by increased market uncertainty about interest rates and U.S. equity prices. From its low of below ¥80 and DM1.35 in the spring of 1995, the dollar rose more than 50 percent against the Japanese yen and about 25 percent against the deutsche mark by May 1997 (Figures 1 and 2). In percentage terms, the dollar's ascent was one of the largest dollar-yen movements to occur over a two-year period. As was recognized in the communiqué of the meeting of G-7 Finance Ministers in April 1997, the movements in the dollar away from the low reached in the spring of 1995 generally brought currencies into better balance. Roughly 10 percent of the yen's decline against the dollar was reversed in May and June 1997.

The dollar's strength after early 1996 was to a large extent due to differences in the cyclical positions of the United States vis-à-vis Europe and Japan, as well as the related large inflows of foreign capital into dollar markets, in particular into the U.S. domestic fixed-income markets, and relatively attractive dollar yields.

Foreign net purchases of long-term U.S. government and corporate bonds reached a record high in 1996, almost 70 percent larger than the historical high reached in 1995 (Table 1). During these two record-setting years, foreign purchases of U.S. treasury bonds exceeded the cumulative net purchases over the previous 10 years (1985–94). Much of the flow into dollar fixed-income markets came from Germany, France, Spain, Japan, and China, and large dollar flows also originated in the major international financial centers—Hong Kong, China; Singapore; and the United Kingdom. By comparison, and despite the impressive performance of U.S. equity prices during the period under review, foreign investors accumulated less than \$14 billion in U.S. equities in 1996.

The demand for dollar assets has been large not only in absolute terms, but also in relation to the U.S. current account deficit and to inflows into other mature markets. Net foreign purchases of U.S. bonds totaled about 5 percent of U.S. GDP in 1996, compared with a U.S. current account deficit of about 2 percent. On a bilateral basis, the magnitudes of capital flows into U.S. bond markets generally exceeded the current account surpluses of source countries (Germany and the United Kingdom had current account deficits). By comparison, foreign purchases of U.S. treasury bonds were 10 times foreign purchases of either German Bunds or Japanese domestic bonds (government and private) (Table 2).

Official reserve accumulation accounted for more than two-fifths of total foreign net purchases of U.S. treasury securities in 1996, half of which was the consequence of developing country efforts to manage exchange rates in the presence of substantial and volatile capital flows. During 1995–96, the Japanese monetary authorities accounted for the single largest accumulation of foreign exchange reserves, as total reserves (minus gold) reached \$217 billion at end-1996, an increase of more than \$90 billion since end-1994.

Private capital flows into U.S. markets totaling \$425 billion were counterbalanced in 1996 by a substantial resurgence in U.S. investment abroad after the retrenchment from foreign markets in 1994; hence, official net capital inflows almost matched the U.S. current account deficit (Table 3). In 1995–96, the scale of these matching private flows were large relative to GDP. Increasing diversification of portfolios accounts for some of the two-way trade in financial assets, but

Figure 1. Spot Exchange Rates*(Local currency/U.S. dollar)*

Source: Bloomberg Financial Markets L.P.

the scale of such flows is also consistent with the view that the United States is playing the role of a global intermediary: it attracts international capital by providing relatively safe, liquid instruments (U.S. government and high-grade corporate debt securities) at relatively high returns and then reinvests them through international markets in less liquid vehicles for higher returns.¹ A rationale for this role is that U.S.-based in-

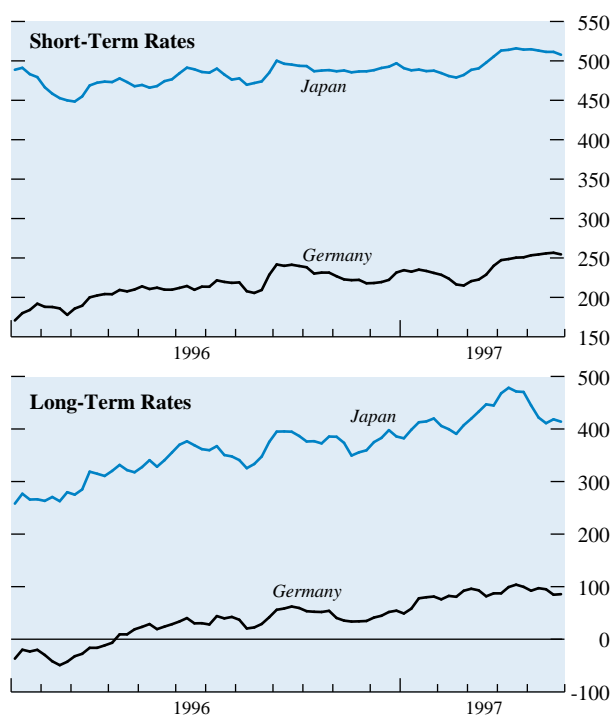
stitutional investors and global financial institutions are generally perceived as possessing advanced knowledge, expertise, and global reach in placing funds in the higher-yielding markets around the world.

Large differentials between U.S. and German and between U.S. and Japanese interest rates were a key factor driving the large flows into U.S. markets and in the dollar's strength. At the same time that interest rates remained low and even declined throughout Europe and Japan, monetary conditions began to tighten in the United States as market participants became concerned that economic activity continued to increase relative to estimates of U.S. capacity output. The Federal Reserve's 25 basis point increase in the federal funds rate in late March 1997 widened the differentials even further. In effect, the combination of asynchronous business cycles and divergent monetary conditions accounted for the relatively wide spreads

¹In the 1960s, Kindleberger (1965) argued the United States played the role of international banker, selling liquid, short-term obligations to nonresidents and buying longer-term claims against them. Triffin (1966) claimed U.S. short-term dollar liabilities to nonresidents were too large relative to the U.S. gold reserve, a view that led to the establishment of the SDR. It is also consistent with the view that capital markets have become more globally integrated. According to Feldstein and Horioka (1980), in an integrated global capital market, domestic savings and domestic investment will be uncorrelated. For a survey see Goldstein and Mussa (1993).

Figure 2. United States, Japan, and Germany: Interest Rate Differentials¹

(In basis points)



Source: International Monetary Fund.

¹Interest rates in Japan and Germany are subtracted from U.S. interest rates.

(Figure 2). U.S. interest rate differentials with Germany have been most significant at the shorter end of the maturity spectrum: the spread on three-month

rates stood at 250 basis points at end-May 1997. Spreads between yen- and dollar-denominated bonds have been particularly large: long-term spreads have been in the range of 300–500 basis points since mid-1995, averaging about 420 basis points in May 1997, and short-term spreads have been in the range of 450–525 basis points, averaging about 510 basis points in May 1997.

Large global macro hedge funds viewed the relatively wide yen-dollar interest rate spread as a potentially lucrative trading opportunity. They presumed that the Bank of Japan did not want the yen to strengthen in 1996–97 and preferred not to raise interest rates in light of the continuing cyclical weakness as well as concerns over the loan books of Japanese banks and the banks' relatively large exposure to interest rate risk. If expectations about the yen-dollar rate and yen interest rates proved correct, then borrowing cheaply in yen, selling yen for dollars, and lending the proceeds to the U.S. Treasury would generate a net profit equal to the sizable interest rate differential. While Japanese banks reduced total cross-border positions by \$20 billion in 1996, they increased lending to nonbank entities in the Cayman Islands—a home for some major hedge funds—by almost \$19 billion. On the other side of the ledger, entities in the Cayman Islands accumulated \$20 billion of U.S. long-term bonds in 1996.² These yen-carry trades were even more profitable than anticipated because the yen depreciated in 1996 and the first four months of 1997.

A second factor boosting flows into U.S. markets was a diversification out of instruments denominated in yen and deutsche mark, in part reflecting a precautionary move to avoid risks associated with uncer-

²These data are from the Bank for International Settlements and the U.S. Department of Treasury, *Treasury Bulletin*.

Table 1. Net Foreign Purchases of U.S. Bonds

(In millions of U.S. dollars)

	Government Bonds	Corporate Bonds	Total
1993	58,980	30,572	89,552
1994	100,481	37,992	138,473
1995	162,844	57,853	220,697
1996	293,685	77,978	371,663
Of which:			
Europe	137,148	56,194	193,342
Germany	19,297	3,514	22,811
United Kingdom	76,323	43,702	120,025
Spain	18,421	462	18,883
Asia	112,597	9,806	122,403
Japan	48,985	6,099	55,084
People's Republic of China	17,209	257	17,466
Hong Kong, China	15,281	1,737	17,018
1997:Q1	77,048	20,826	97,874

Source: U.S. Department of Treasury, *Treasury Bulletin*.

Table 2. Net Purchases of Domestic Bonds by Nonresidents
(In billions of U.S. dollars)

	United States	Japan	Germany		France	United Kingdom	Canada
			Bunds ¹	Other			
1993	89.55	-31.07	93.15	33.29	19.94	20.82	21.70
1994	138.47	-13.72	2.95	11.67	-36.15	1.85	10.83
1995	220.70	-8.46	35.38	25.35	2.84	5.26	21.78
1996	371.66	25.27	26.91	38.06	-31.29	15.75	13.58

Sources: BZW Securities Limited; and U.S. Department of Treasury, *Treasury Bulletin*.¹*Bundesanleihen* are German long-term federal bonds.

tainty about the likelihood, timing, and country composition of EMU³ and about the resolution of financial system problems in Japan. This revealed preference for reducing yen and deutsche mark exposures

³The diversification away from Europe and toward the dollar can be seen as reflecting uncertainty about the initial strength or weakness of the euro once EMU begins. There were also occasions when the deutsche mark strengthened against the dollar and other European currencies, usually on the release of economic and financial data or on policy developments that called into question whether EMU would go ahead on time, in which case the deutsche mark could be seen as a “safe haven” within Europe.

was also associated with the appreciation of the currencies of some of the higher-yielding EU and “dollar-bloc” countries, such as the United Kingdom, Australia, Canada, and New Zealand. A possible third interrelated factor was that Europe and Japan were net suppliers of international liquidity. In both locations, real money growth exceeded output growth, and domestic demand for funds fell short of domestic supplies.

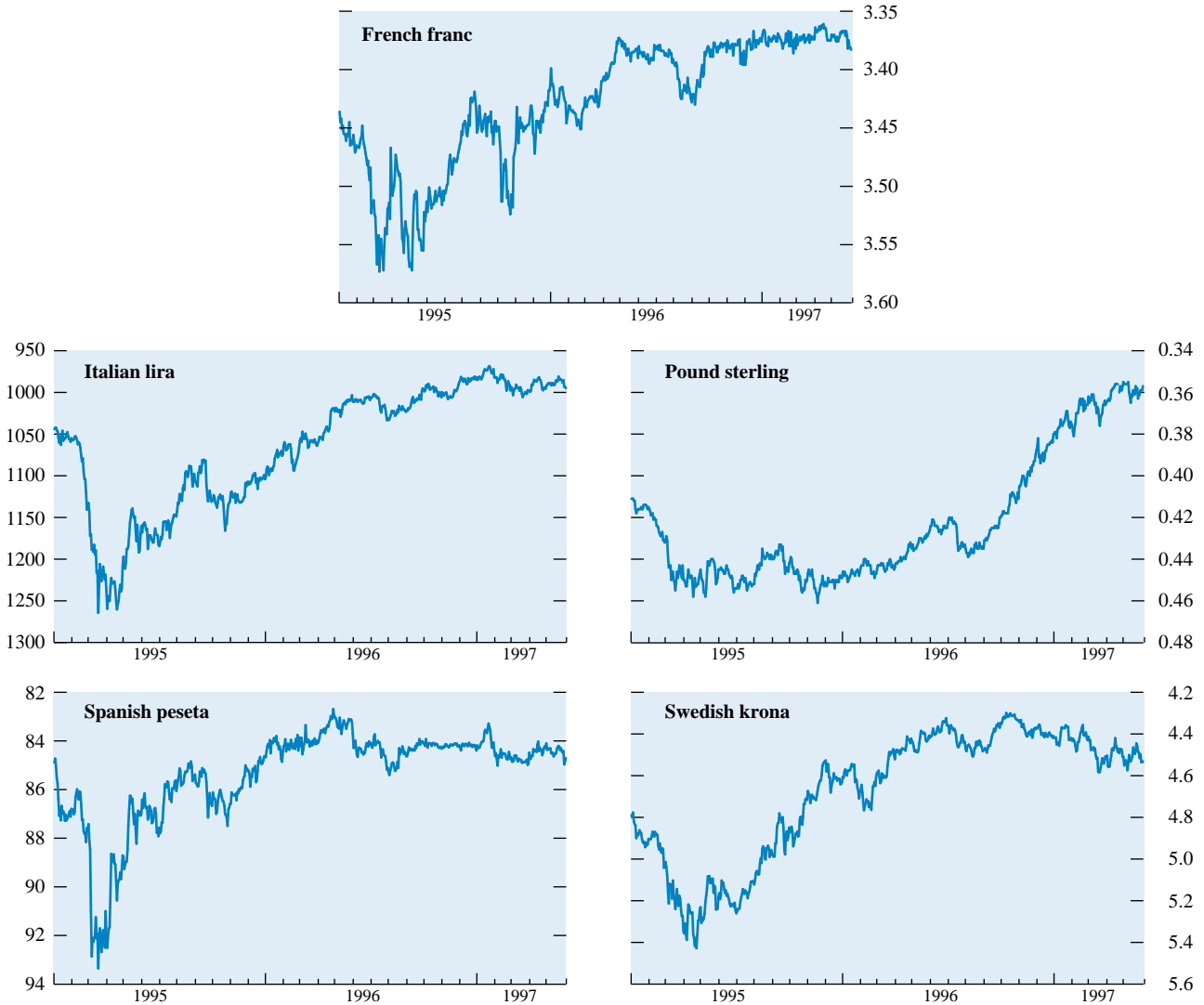
In European currency markets, renewed optimism about the prospects for EMU and progress in reducing inflation and fiscal deficits led to the appreciation of

Table 3. United States: International Transactions

	1990	1991	1992	1993	1994	1995	1996
	(In billions of U.S. dollars)						
Current account balance	-91.9	-5.7	-56.4	-90.8	-133.5	-129.1	-148.2
Foreign assets in the United States, net (increase/capital inflow (+))	141.0	109.6	168.8	279.7	297.3	451.2	547.6
Foreign official assets, net	33.9	17.4	40.5	71.8	40.4	110.7	122.4
Other foreign assets, net	107.1	92.3	128.3	207.9	256.0	340.5	425.2
Direct investment	47.9	22.0	17.9	49.0	45.7	67.5	77.0
Domestic securities	-0.9	53.0	67.2	104.5	91.2	195.9	289.4
U.S. liabilities to unaffiliated foreigners reported by U.S. nonbanking concerns	45.1	-3.1	13.6	10.5	-7.7	34.6	31.8
U.S. liabilities reported by U.S. banks, not included elsewhere	-3.8	4.0	16.2	25.1	104.3	30.2	9.8
U.S. currency flows	18.8	15.4	13.4	18.9	23.4	12.3	17.3
U.S. assets abroad, net (increase/capital outflow (-))	-74.0	-57.9	-68.8	-194.5	-160.5	-307.2	-352.4
U.S. official reserve assets plus government assets, net	0.1	8.7	2.2	-1.7	5.0	-10.3	6.0
U.S. private assets, net	-74.2	-66.6	-71.0	-192.8	-165.5	-296.9	-358.4
Direct investment	-30.0	-31.4	-42.6	-77.9	-69.3	-86.7	-87.8
Foreign securities	-28.8	-45.7	-49.2	-146.3	-60.3	-100.1	-108.2
U.S. claims on unaffiliated foreigners reported by U.S. nonbanking concerns	-27.8	11.1	-0.4	0.8	-31.7	-35.0	-64.2
U.S. claims reported by U.S. banks, not included elsewhere	12.4	-0.6	21.2	30.6	-4.2	-75.1	-98.2
Unrecorded outflows (statistical discrepancy)	24.9	-46.1	-43.6	5.6	-3.3	-14.9	-46.9
	(In percent of GDP)						
<i>Memorandum items:</i>							
Current account balance	-1.6	-0.1	-0.9	-1.4	-1.9	-1.8	-2.0
Foreign assets in the United States, net (increase/capital inflow (+))	2.5	1.9	2.7	4.3	4.3	6.2	7.2
U.S. assets abroad, net (increase/capital outflow (-))	-1.3	-1.0	-1.1	-3.0	-2.3	-4.2	-4.7

Sources: International Monetary Fund, *World Economic Outlook* database; and U.S. Department of Commerce, *Survey of Current Business*.

Figure 3. Major European Countries: Exchange Rates vs. Deutsche Mark
 (Local currency/deutsche mark)



Source: Bloomberg Financial Markets L.P.

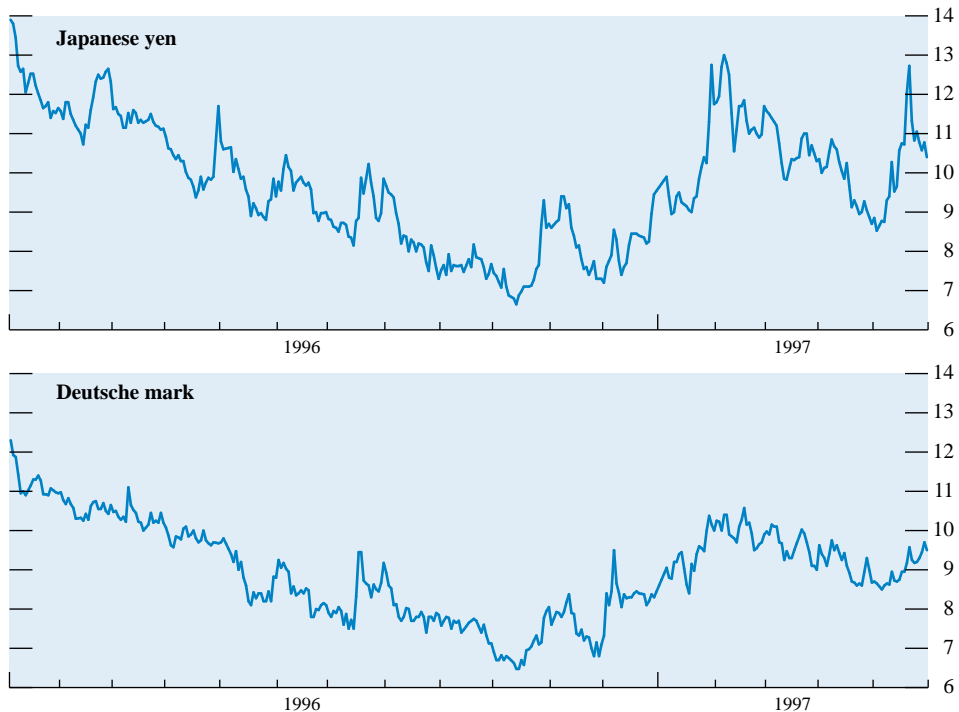
several EU currencies against the deutsche mark (Figure 3). The Finnish markka joined (October), and the Italian lira reentered (November), the exchange rate mechanism (ERM) of the European Monetary System in 1996. While both currencies strengthened upon entry, they have since lost these gains. The strongest currencies have been the pound sterling and the Irish pound, both of which have been supported by robust economic activity and expectations of rising interest rates. The Irish pound is the most appreciated currency in the ERM grid, having risen about 10 percent since mid-1996 above its central rate against the deutsche mark, and the pound sterling was the only

major currency to appreciate against the dollar over the past 18 months.

Despite the large swings in the major currencies, month-to-month volatility in foreign exchange markets fell substantially in 1996, particularly for second-tier European currencies (Figure 4).⁴ A tangible effect of the drop in volatility has been a sharp drop in turnover in currency spot markets, and both of

⁴Lower volatility has led to, and perhaps been supported by, increased activity in currency options (binary and range options), which allow investors to fine-tune exposures to the level, direction of change, and volatility of underlying asset prices.

**Figure 4. Implied Volatility: Japanese Yen and Deutsche Mark
Three-Month Forwards**



Source: Bloomberg Financial Markets L.P.

Note: Implied volatility is a measure of the expected future volatility of the currency based on market prices of the call options on forward contracts in the currency.

these developments were associated with a scaling back of European foreign exchange trading and dealing operations.

Credit Markets: Spread Compression and Increased Volumes

Bond Markets

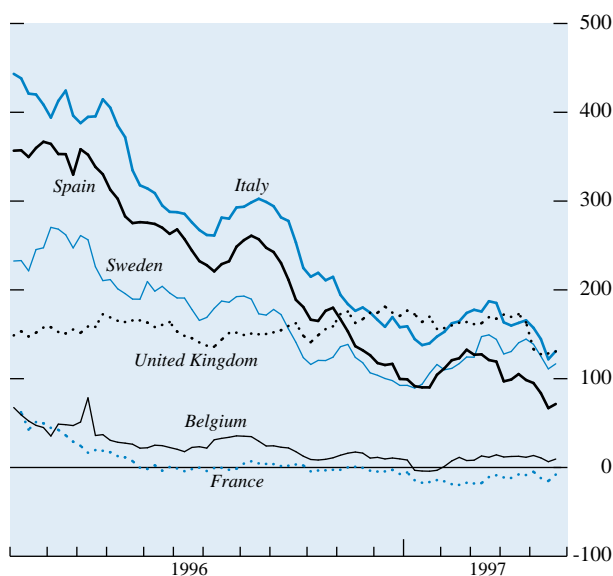
During the past twelve months, low and declining inflation, fiscal consolidation, ample international liquidity, and a stable international environment supported a global compression of interest rate spreads (relative to benchmark yield curves) and record levels of new issuance in both domestic and international bond markets. Low interest rates in Europe and Japan, and the global search for yields, facilitated capital flows into the United States and higher-yielding mature domestic bond markets outside of Europe (Canada, Australia, and New Zealand), into corporate bonds (Figures 5–7), and into emerging markets (see Chapter IV). The demand for higher-yielding domes-

tic issues was broadly based geographically and included investors in the major European countries, Japan, and North America. In international markets, strong demand for dollar-denominated instruments raised the share of dollar issuance by more than 100 percent in 1996, whereas the shares of yen and deutsche mark issues dropped almost 80 percent and 40 percent, respectively.

Although substantial, the decline in interest rate spreads in the high-yield sectors stopped short of the low spreads reached as recently as 1994. Fears of a tightening of U.S. monetary policy caused periodic, temporary, retrenchments from U.S. bond markets (as with the large sell-off in early 1996). By late 1996, the extent of the narrowing of spreads in some segments of the higher-risk markets—notably the high-yield corporate sectors and selected emerging markets—raised concerns about spreads having narrowed beyond what was warranted by the fundamentals. In anticipation of a rise in U.S. interest rates, spreads widened modestly in most of the higher-yielding markets during the early months of 1997, and when the Federal Reserve eventually raised the federal funds

Figure 5. Selected European Long-Term Interest Rate Differentials with Germany

(In basis points)



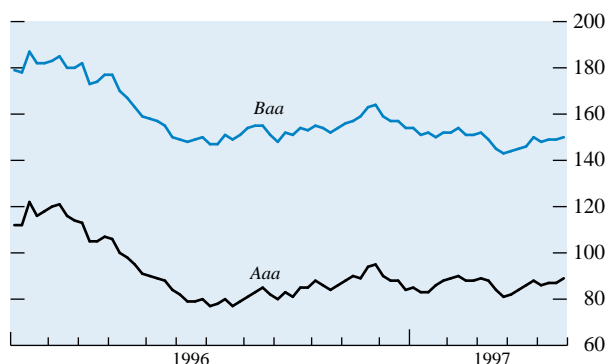
Source: International Monetary Fund.

target rate by 25 basis points in late March 1997, the bond market reaction was muted.

In European bond markets, even though interest rate spreads have recently widened modestly, market participants have priced in a high probability of EMU going ahead in 1999 (Table 4). Spreads over deutsche mark yields peaked in early 1995 as a result of the flight-to-quality associated with the global bond market correction in 1994 and the Mexican crisis in 1994–95. The subsequent narrowing of intra-European spreads continued in 1996 as doubts about political and economic commitments to EMU dissipated, and monetary policy in Germany was further eased. In core Europe (Austria, Belgium, France, Germany, Luxembourg, and the Netherlands), where spreads were thin to begin with, French and Dutch long-term yields fell below deutsche mark yields by late 1996. Spreads in some other EU countries have been strongly influenced by fluctuations in the probability of EMU participation in 1999, displaying considerable sensitivity to news events. Against the German benchmark, the Italian 10-year yield spread narrowed about 350 basis points from early 1996 through the end of May 1997, Spanish spreads fell 300 basis points, and Swedish spreads fell 130 basis points. The United Kingdom is the notable exception to this convergence, a fact attributable to the unique U.K. cyclical position and perhaps to the uncertainty about U.K. participation in EMU.

Figure 6. United States: Yield Spreads of Corporate Bonds over U.S. Treasuries¹

(In basis points)



Source: Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*.

¹Yields on 10-year U.S. treasury bonds of constant maturities are used for U.S. treasuries.

In 1996, gains in total return indexes for European long-term bonds ranged from almost 50 percent in Italy to about 10–15 percent in core EU countries.⁵ Returns on aggressive convergence plays have been even higher. Convergence plays in the early 1990s typically exploited yield differentials in cash markets, whereas convergence plays in 1996 were executed largely through interbank swap markets,⁶ a tactic that avoids much of the capital outlay required to establish positions in cash markets. As a result, deutsche mark-denominated swap activity—the “pay side” of convergence plays—increased 44 percent in the first half of 1996 to \$2.2 trillion. By late 1996, most of these convergence positions were reportedly unwound with the narrowing of spreads.

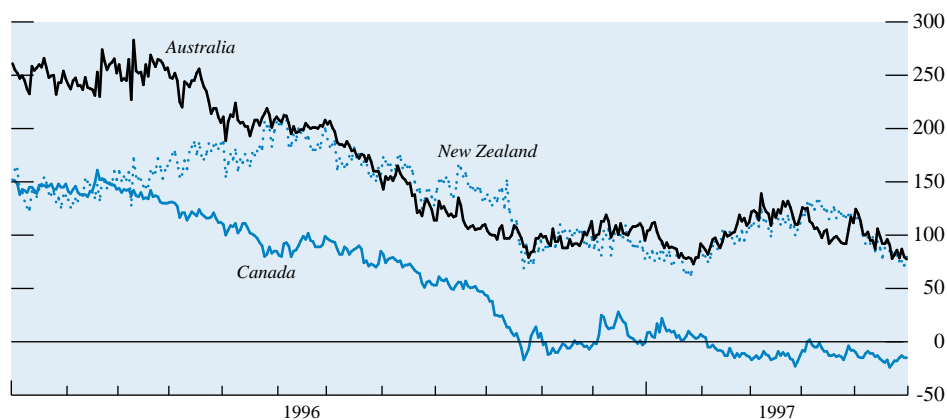
The compressed spreads in secondary markets created favorable conditions for issuance of debt securities in international and domestic markets in 1996. In international markets, the funds raised in debt securities markets slightly exceeded funds raised through newly announced syndicated lending facilities. Despite sluggish economic activity and fiscal consolidation in some advanced countries, record volumes of debt securities were issued in both international and

⁵Bloomberg/EFFAS (European Federation of Financial Analyst Societies) 10-year government bond Total Return Indexes (coupons reinvested).

⁶A simple example is a cross-currency interest rate swap in which the investor makes a stream of interest payments denominated in deutsche mark in exchange for a stream of interest payments denominated in a higher-yielding currency. If the interest rate spread narrows before the contract maturity date, the investor effectively books a profit equal to the change in the spread times the months to maturity (see Annex II of the Background Material for details).

Figure 7. Australia, Canada, and New Zealand: Yield Differentials on 10-Year Government Bonds

(In basis points against the yield on 10-year U.S. government bonds)



Source: Bloomberg Financial Markets L.P.

domestic markets. In international markets, issuance increased by nearly 100 percent on strong demand for funds by U.S. corporations and by Dutch, German, U.K., and U.S. financial institutions (Table 5). Financial institutions accounted for two-thirds of this sharp increase, and U.S. corporations accounted for more

than half of all issuance by nonfinancial corporations. In domestic markets, private issuance rose 10 percent, half of which occurred in U.S. domestic markets; most of the remaining issuance occurred in Germany, Italy, Japan, and the United Kingdom. Public issuance declined slightly.

Table 4. One-Year Interest Differentials with Germany, February 28, 1995, January 30, 1997, and May 31, 1997¹

(In basis points)

	Spot	January 1, 1999 ²	January 1, 2000 ²	January 1, 2001 ²
February 28, 1995				
France	118	29	30	25
Italy	546	424	415	385
Spain	438	435	410	378
Sweden	319
United Kingdom	204	165	157	143
European currency unit (ECU)	132	91	70	56
January 30, 1997				
France	15	-22	-29	-26
Italy	342	154	105	81
Spain	231	86	54	33
Sweden	111	137	131	112
United Kingdom	370	293	211	146
ECU	87	6	10	-5
May 31, 1997				
France	39	-23	-28	-21
Italy	345	189	148	116
Spain	185	85	49	41
Sweden	144	173	158	130
United Kingdom	378	289	202	132
ECU	95	22	14	12

Source: Bloomberg Financial Markets L.P.

¹Calculated based on the one-year forward rates embedded in the yield curve.

²Based on the data for the first available day of the year.

Table 5. Domestic and International Debt Securities: Amounts Outstanding and Net Issues

(In billions of U.S. dollars)

	Amounts Outstanding				Net Issues				
	1994	1995	1996	1997	1996				1997
				Q1	Q1	Q2	Q3	Q4	Q1
International debt securities									
Total issues	2,441.2	2,802.5	3,225.9	3,240.7	113.8	141.5	108.2	176.6	137.6
Bonds	2,035.2	2,208.7	2,391.8	2,354.0	57.4	65.9	60.1	91.7	54.6
Medium-term notes	292.0	461.3	662.5	711.9	47.5	58.1	51.9	66.4	75.9
Euro-commercial paper	81.5	87.0	102.9	110.2	6.7	10.4	-1.5	1.8	9.5
Other short-term notes	32.6	45.5	68.7	64.6	2.3	7.1	-2.4	16.7	-2.4
Private sector	1,559.1	1,804.2	2,150.7	2,178.2	91.7	106.4	83.9	134.5	105.5
Of which:									
United States	204.7	253.0	366.2	377.8	26.5	30.0	25.0	38.3	18.6
Japan	341.3	347.4	332.9	321.2	0.9	4.3	5.9	0.5	2.1
Germany	179.1	257.9	334.6	349.0	27.7	19.3	19.4	26.5	32.2
France	178.9	199.3	201.2	196.3	-0.3	8.5	5.2	-1.6	5.8
Italy	40.2	40.3	40.9	38.8	0.1	-0.4	-0.3	1.3	-0.1
United Kingdom	195.4	210.1	257.3	259.4	7.5	6.2	3.9	20.7	10.0
Canada	37.4	40.0	47.2	47.7	1.7	1.0	2.8	2.1	1.0
Public sector	598.7	689.3	756.0	751.8	18.6	27.3	21.4	31.4	23.7
Of which:									
United States	5.0	19.8	36.4	40.2	4.8	4.8	3.2	4.1	4.1
Japan	20.0	21.8	23.8	23.4	0.7	0.3	1.0	0.9	0.3
Germany	9.4	11.2	7.7	7.4	0.2	-0.2	0.0	-2.6	0.3
France	6.6	8.1	14.7	15.3	0.7	3.7	1.1	1.8	1.3
Italy	45.0	52.5	54.9	53.4	-0.2	3.0	1.3	0.9	0.8
United Kingdom	17.1	17.1	16.9	16.1	0.0	0.0	-2.0	2.0	-0.1
Canada	128.0	137.6	135.5	135.9	-1.4	-0.3	0.5	2.0	2.7
Domestic debt securities									
Total issues ¹	22,823.9	24,874.3	25,829.6	...	624.6	422.5	393.5	440.0	...
Bonds	18,336.2	19,923.6	20,541.9	...	329.6	400.2	347.9	330.9	...
Medium-term notes	530.9	612.4	664.1	...	23.2	19.8	20.1	8.0	...
Commercial paper	815.9	907.2	1,031.6	...	12.6	62.7	18.6	43.4	...
Treasury bills	1,876.9	1,998.3	1,964.3	...	106.1	-7.6	-37.9	-23.8	...
Other short-term notes	1,264.0	1,432.7	1,627.7	...	153.1	-52.6	44.8	81.6	...
Private sector ¹	8,335.0	9,195.4	9,624.9	...	255.4	121.8	165.6	245.8	...
Of which:									
United States	3,654.0	4,069.6	4,513.0	...	84.9	120.1	110.2	128.2	...
Japan	1,497.3	1,529.7	1,469.1	...	62.1	-40.9	15.9	79.5	...
Germany	863.9	1,026.6	1,024.6	...	38.5	13.9	18.8	9.5	...
France	572.7	601.9	549.5	...	4.3	-5.2	-2.3	-10.4	...
Italy	325.4	356.5	410.0	...	16.7	11.4	1.9	10.6	...
United Kingdom	170.0	186.2	258.6	...	18.5	2.1	7.9	23.1	...
Canada	47.2	53.1	65.9	...	0.2	4.1	0.9	7.8	...
Public sector ¹	14,488.9	15,678.9	16,204.7	...	369.2	300.7	227.9	194.2	...
Of which:									
United States	6,362.3	6,708.2	7,102.0	...	105.8	59.3	110.4	118.2	...
Japan	3,252.7	3,425.9	3,299.0	...	128.1	103.5	10.0	37.5	...
Germany	805.0	882.4	853.6	...	4.5	14.4	10.4	11.6	...
France	549.4	673.6	689.8	...	28.3	14.7	26.1	-8.6	...
Italy	1,074.0	1,169.5	1,277.8	...	16.4	26.1	22.2	4.2	...
United Kingdom	354.8	412.8	467.3	...	-6.6	17.8	6.9	-3.0	...
Canada	410.5	443.2	443.3	...	6.6	1.0	-0.6	-5.4	...
Memorandum items:									
International debt securities									
Financial institutions	835.9	1,037.5	1,344.4	...	78.1	78.0	72.6	113.9	89.8
Government and state agencies	603.1	689.1	755.8	...	18.5	27.3	21.4	31.3	23.6
Corporate issuers	718.5	766.7	806.4	...	13.6	28.3	11.3	20.6	15.7

Source: Bank for International Settlements.

¹Organization for Economic Cooperation and Development countries plus major emerging markets.

Table 6. Announced International Syndicated Credit Facilities by Nationality of Borrowers*(In billions of U.S. dollars)*

	1992	1993	1994	1995	1996	1996				1997
						Q1	Q2	Q3	Q4	Q1
All countries	221.4	220.9	252.0	310.8	530.0	96.8	158.3	115.6	159.3	114.4
Industrial countries	165.2	168.3	199.4	244.1	448.1	77.0	140.3	93.5	137.1	93.7
Of which:										
United States	91.3	88.1	72.1	76.3	297.9	41.8	96.1	61.4	98.6	71.7
Japan	1.5	1.5	1.3	0.7	4.1	0.4	0.3	0.0	3.4	0.6
Germany	2.1	2.9	1.4	13.0	7.3	3.9	0.8	2.1	0.4	1.4
France	5.5	6.0	6.2	12.2	16.2	0.7	12.6	1.3	1.6	0.9
Italy	5.4	2.8	3.7	15.2	5.7	1.0	1.0	1.9	1.8	1.0
United Kingdom	25.5	17.0	34.2	54.6	59.4	11.1	17.2	17.6	13.5	11.6
Canada	3.5	9.4	16.0	11.9	12.2	1.4	3.0	0.5	7.2	1.1

Source: Bank for International Settlements.

Heightened investor concerns about the direction of interest rates during 1996–97 led to a shift in demand toward floating-rate and short-term paper and away from bonds. Between end-1994 and the end of the first quarter of 1997, issuance of medium-term notes, Euro commercial paper, and other short-term notes grew by 118 percent whereas international bond issuance grew by only 16 percent. The shift away from bonds is partly attributable to the growing sophistication of borrowers, who value the flexibility offered by note issuance facilities.

In search of higher yields, and in an attempt to economize on capital requirements, banks' issuance of asset-backed securities continued to expand briskly in the United States and in international markets. In 1996, issuance in the U.S. market—the largest asset-backed securities market in the world—expanded at double-digit rates, and the amount of outstanding asset-backed securities reached about \$740 billion. In both the U.S. and international markets, some of the larger asset-backed securities issues included the securitization of loan portfolios and of various types of receivables from developing countries.

International Bank Loan Markets

The ample supply of funds in securities markets in 1996 intensified competition and maintained thin margins in international loan markets. Announced syndicated credits rose 68 percent in 1996, driven by refinancing operations, mergers and acquisitions, commercial paper and asset-backed securities backup facilities, and project financing. Most of the increase in borrowing was by entities located in the United States, the United Kingdom, the offshore centers, and developing countries (Table 6). The demand for syndicated loans by U.S. borrowers rose by \$218 billion in 1996, an increase of almost 400 percent and greater than the increase in announced credits to all other countries.

Much of the increase in lending came from Benelux, British, Dutch, German, Italian, and Swiss

banks, and EMU convergence plays provided a significant boost to the international lending activities of European banks. Cross-border activity by U.S. banks was buoyed by demand in the Eurodollar markets and by financing associated with the surge in foreign demand for U.S. bonds. Japanese banks are still the largest international lenders, but they continued to retreat, especially from international interbank markets, as their share of international lending dropped to the 13-year low of 22 percent.

Aggregate loan spreads over the London interbank offered rate (LIBOR) remained relatively constant in 1996–97, as banks in a relatively benign economic environment sought higher margins by expanding their lending into new geographic areas and to lesser-known names (Table 7). As competition has led investors to ratchet down the credit spectrum, spreads among prime and nonprime borrowers have narrowed.⁷ These considerations once again prompted warnings from regulators that diligence must not be ignored in extending credits at razor-thin margins. U.S. regulators, in particular, expressed concern also with the lengthening of maturities and relaxation of covenants to higher-risk borrowers.

A notable development is the growing displacement of interbank lending by repurchase agreements (repos). At end-1996, international repos outstanding totaled about \$1 trillion, and annual turnover is estimated to have reached between \$40 trillion and \$50 trillion. The increased use of repos reflects the greater emphasis on collateral in interbank funding, which is attributable to two factors. First, heightened credit-risk awareness, partly inspired by capital requirements, has encouraged the use of repos as banks have extended their funding activities into geographically

⁷For instance, in November 1996 a large commercial bank in the Czech Republic obtained financing from a group of European banks at a spread of 20 basis points over LIBOR for the first three years of the loan, which is within a few basis points of the cost of funds for any of the highest-rated borrowers.

Table 7. Average Spreads and Maturities on Eurocredits

	1991	1992	1993	1994	1995	1996
	<i>(In basis points)</i>					
Average spread ¹						
OECD countries	80	85	78	59	43	51
Non-OECD countries	78	87	103	113	117	99
All countries	79	85	81	64	50	56
	<i>(In months)</i>					
Average maturity						
OECD countries	62	56	51	61	64	64
Non-OECD countries	76	69	67	64	58	60
All countries	65	57	53	61	63	64

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

¹Weighted average of spreads (over LIBOR) applied to Eurocredits signed during the period. Tax-sparing loans as well as facilities classified under "other debt facilities" are excluded.

less familiar markets and as concerns have increased about some major banks active in the international markets. Second, collateralization procedures and documentation are more standardized, which has facilitated the use of repos by banks.

Risks in Foreign Exchange and Credit Markets

Analysis of global currency markets suggests that the large volume of long dollar positions held by investors, speculators, and dynamic hedgers might have increased the sensitivity of international portfolios to downward movements in the dollar. An example of this increased risk is the mid-May 1997 sell-off of dollar assets in favor of yen assets and the sharp and unexpected rebound of the yen (see the appendix at the end of this chapter), which followed remarks about overshooting by Japanese officials and raised concerns that some of Japan's dollar reserves would be liquidated. The unwinding of yen-carry trades might have hastened the momentum of the yen's rebound as investors rushed to liquidate long dollar positions to cover their short yen positions. There are also market risks associated with the transition to EMU. In particular, market volatility could increase as investors rebalance their portfolios as decisions about the initial country composition and euro conversion rates are anticipated and made between now and January 1, 1999.

In credit markets, there is a risk that risk-adjusted spreads may have fallen below what is justified by fundamentals. Cyclical factors increasingly suggest that monetary policy is likely soon to be tightened in some major countries, and a key question is whether markets have fully priced in the risks of a further tightening and the associated credit risk. There appears to be significantly less leverage in credit markets than there was before the bond market turbulence in 1994. At a minimum, this would suggest a smaller likeli-

hood of overshooting if and when an adjustment in spreads occurs. In the event that growth continues to be sluggish in Japan and Europe, a further tightening of monetary policy in the United States could lead to a widening of interest rate differentials and an increased demand for dollar instruments.

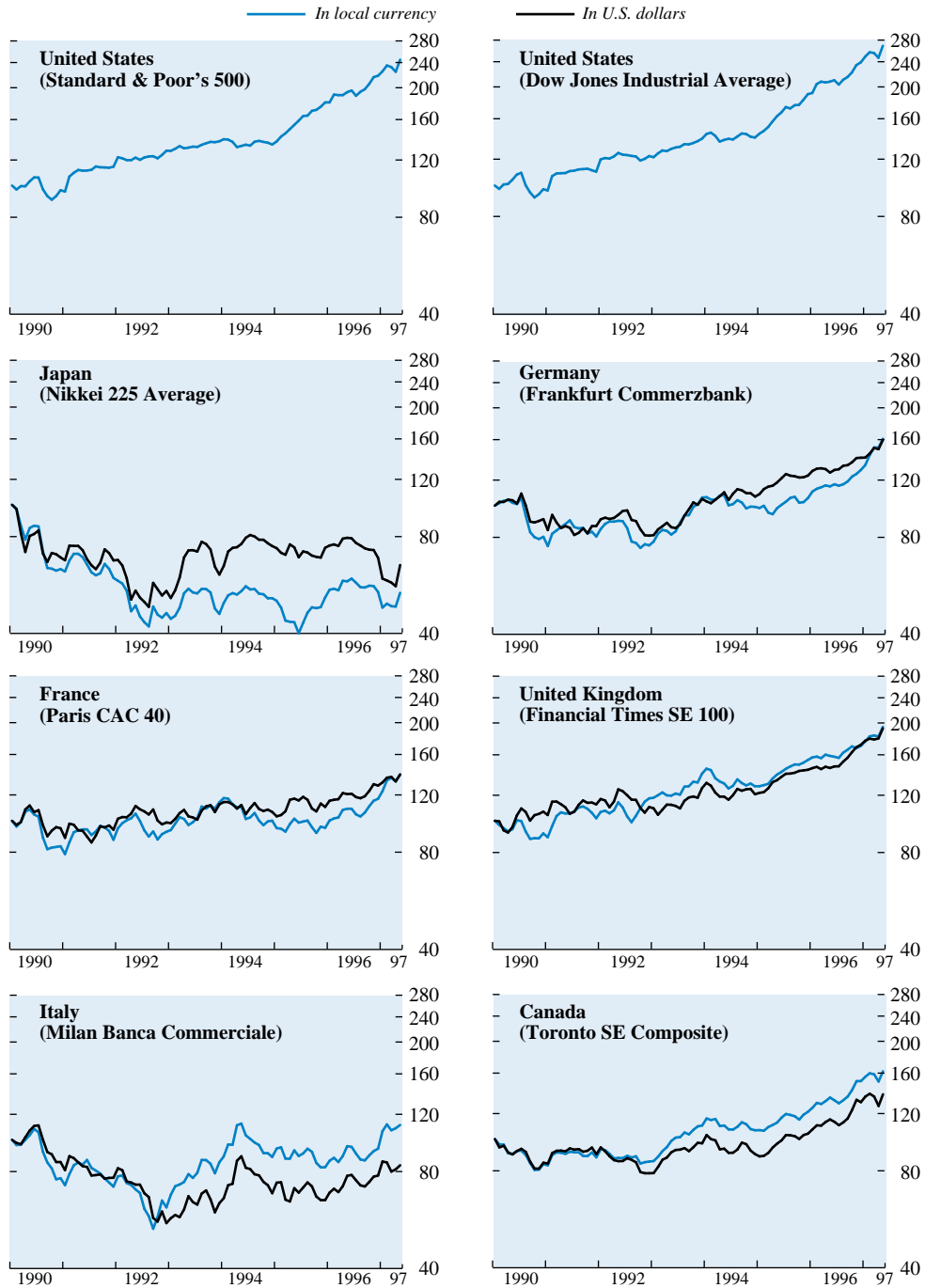
Equity Markets

Equity prices in industrial countries have risen strongly over the past 18 months (Figures 8–9), with the increase in Japanese prices being somewhat less pronounced. Markets in 10 European countries ended 1996 at all-time highs, while North American, French, and German markets also reached record valuations in December. In local currencies, European markets comfortably outperformed the 20 percent advance in U.S. equity prices in 1996. Some of the momentum in European equity markets has been attributed to the improved prospects for their export sectors associated with the depreciation of most continental European currencies against the dollar. Also favorable has been the trend toward low interest rates, which have an important impact on the discounted value of future corporate earnings.

The U.S. equity market has clearly been the star performer in the 1990s (Figure 8). Although the rise in U.S. markets after early 1996 has been matched or exceeded by other advanced equity markets, U.S. markets have outperformed most other advanced equity markets since the beginning of the decade, in some cases by a factor of two or more. Remarkably, in the period 1992–96, the Dow Jones Industrial Average doubled in value, while historically the index has doubled every 17 years. Moreover, over the same period, U.S. equity market capitalization increased from 72 percent of GDP to 107 percent of GDP.

An important factor that has added significant momentum to U.S. equity prices during the past few

Figure 8. Stock Market Indices: Major Industrial Countries¹
(Indices, January 1990 = 100)



Source: International Monetary Fund.

¹Monthly averages of daily observations, January 1990 through May 1997.

Figure 9. Stock Market Indices: Smaller European Countries¹
 (Indices, January 1990 = 100)

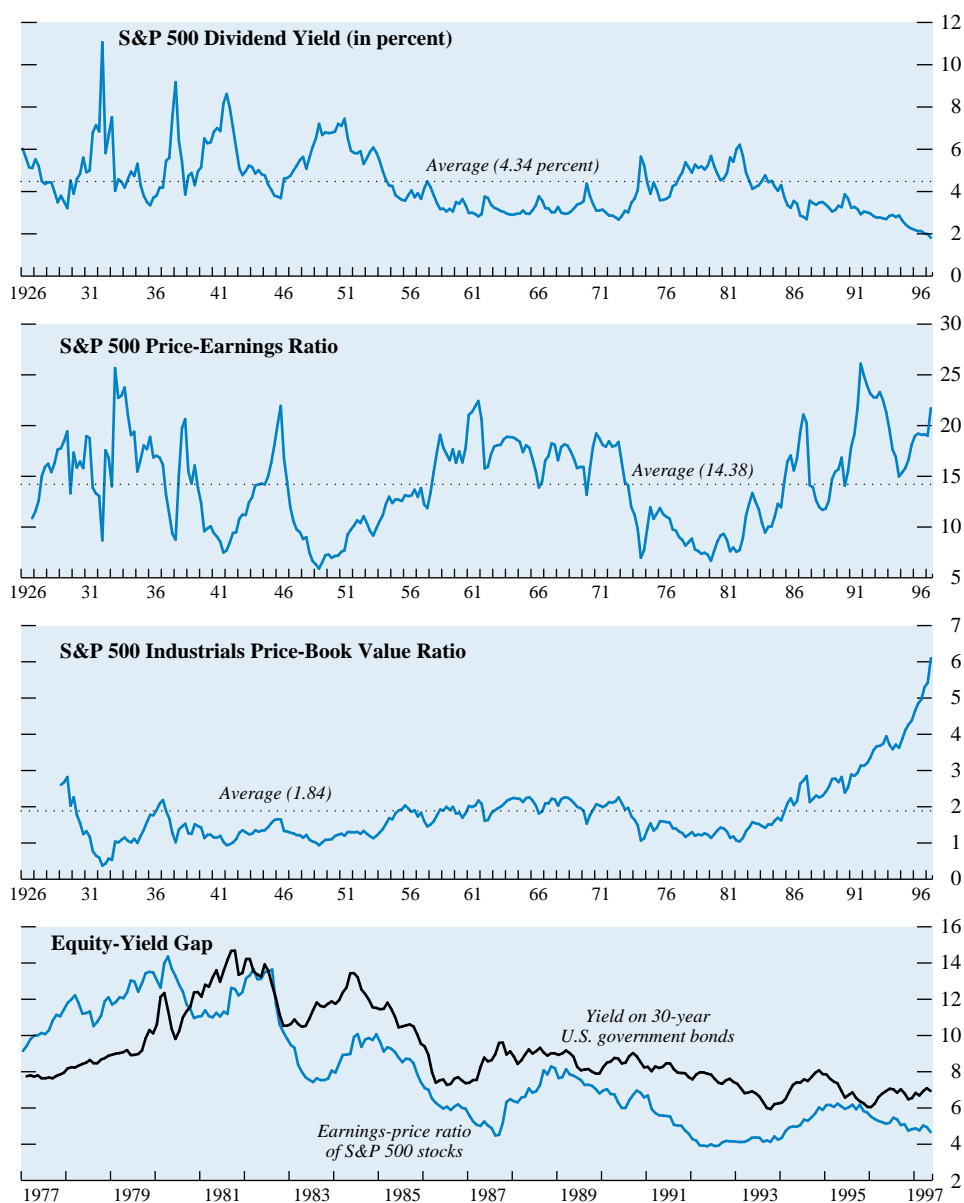


Sources: Bloomberg Financial Markets L.P.; Brussels Stock Exchange; International Monetary Fund; and The WEFA Group.

¹Data for January 1990 through May 1997.

²January 1991 = 100.

Figure 10. United States: Equity Market Performance



Sources: Board of Governors of the Federal Reserve System; Bloomberg Financial Markets L.P.; and Standard & Poor's.

years is the persistence of large inflows into U.S. equity mutual funds. Between January 1995 and April 1997, U.S. equity mutual funds were the recipients of \$424 billion in new investments, and they currently manage \$1.8 trillion. Mutual funds control 20 percent of the U.S. equity market capitalization, and they have a significant impact on prices, especially because they channel the bulk of new flows into U.S. equity markets.

Although improved profits help explain the rise in U.S. markets, price gains of the magnitude experienced in recent years have pushed some of the conventional valuation indicators into territory that has raised concerns of overvaluation (Figure 10). Dividend yields—currently about 2 percent—have fallen to historical lows and are about half their long-term average, and both the market-price-to-book ratio and the closely related Tobin's q ratio are deviating from

Table 8. Major Industrial Countries: Equity Market Risk-Adjusted Returns in Local Currency (Sharpe Ratios)¹

Period	United States	Japan	Germany	France	Italy	United Kingdom	Canada
1983–87	0.42	1.03	0.36	0.61	0.53	0.60	0.23
1984–88	0.38	1.17	0.33	0.56	0.61	0.42	-0.04
1985–89	0.69	1.17	0.55	0.68	0.57	0.41	0.24
1986–90	0.27	0.23	-0.21	0.07	-0.30	0.05	-0.24
1987–91	0.39	-0.19	-0.23	-0.13	-0.84	-0.02	-0.22
1988–92	0.64	-0.46	0.12	0.27	-0.47	0.12	-0.49
1989–93	0.63	-0.59	0.17	0.07	-0.28	0.36	-0.17
1990–94	0.27	-0.61	-0.26	-0.37	-0.32	-0.03	-0.33
1991–95	1.16	-0.18	0.13	0.04	-0.05	0.60	0.28
1992–96	1.21	-0.16	0.39	0.21	0.03	0.69	0.63

Source: BZW Securities Limited.

¹Sharpe reward-to-volatility ratios are calculated as the equity return minus three-month Euro deposit rates (i.e., portfolio excess return), divided by the standard deviation of equity returns, all measured over the previous five years.

their historical ranges. While these deviations can be explained by the shift away from capital-intensive industries to services, the rise in the ratio of equity prices to book value is still extraordinary. Moreover, the average price-earnings (P/E) ratio is clearly approaching the upper end of its normal range. On the other hand, given the favorable interest rate environment, the equity-yield gap, which measures the difference between long-term bond yields and the earnings-price ratio (inverse of the P/E ratio), remains within historical ranges and is still well below the levels reached prior to the 1987 stock market crash.

In assessing the sustainability of U.S. equity prices, a key question is whether U.S. equity valuations reflect expectations of further increases in earnings growth that may prove unrealistic. (This was emphasized by Federal Reserve Board Chairman Alan Greenspan in widely reported remarks before a meeting of the National Association of Business Economists on March 5, 1997.) In early 1997, S&P 500 earnings were about 15 percent above a year earlier, and a majority of companies' earnings exceeded market forecasts. Earnings growth averaged about 15 percent during the past five years, while average five-year real earnings growth since 1960 has been in the range of 2 percent. This suggests that the balance of risks would imply lower rather than higher earnings growth, especially because profit margins would be unlikely to improve in an environment of near-capacity economic activity and tight labor markets.

Despite these downside risks, U.S. equities do not appear to be as far out of line as they were in August 1987 or when compared with the Japanese market in 1989, when bond yields were high and rising, corporate earnings were weak, and monetary policy was stimulative. Nevertheless, equity prices are at levels that make them vulnerable to reductions in corporate earnings and to increases in interest rates. An additional concern is that the steady, high returns experi-

enced in recent years might have created the illusion for small mutual fund investors that there are only limited risks associated with equity investments. It remains to be seen, therefore, how small investors (and the mutual funds they invest in) will behave in a more volatile environment in which equity investments are seen to be risky and to produce less-spectacular gains.⁸

The Japanese market has not performed as strongly as markets in some of the other main industrial countries (Table 8).⁹ Japan's Nikkei 225 index declined 2.5 percent in 1996. There is little domestic demand for Japanese equities. Some major institutional investors (e.g., insurance companies) have negative cash flows, while others, such as banks, have weak balance sheets, and both groups have been forced to sell equities. Households also have been net sellers of domestic equities. Prior to the collapse of equity prices in 1990, investment trusts had more than half of their assets invested in Japanese equities; by the first quarter of 1997, this weighting was just over 20 percent. While this smaller weighting can be traced to lower equity prices, there also have been significant net redemptions in recent years. Public and foreign purchases have provided some support for Japanese equity prices. Continuing concerns about the nonperforming loan problem led bank stocks to underperform the market as a whole: between January 1996 and May 1997, the TOPIX index (a capitalization-weighted

⁸To bolster crisis management systems, in February 1997 U.S. and U.K. equity market regulators, exchanges, and clearinghouses held the first cross-border stress test involving a hypothetical default of a firm on a U.S. exchange that precipitated a corresponding default of a firm on a U.K. exchange. The test identified weaknesses ranging from incorrect emergency phone numbers to the inability to determine the amount of capital available to corporations with interlocking affiliates.

⁹Sharpe reward-to-volatility ratios indicate that Japanese equities have underperformed both equities in the other major industrial countries and the return on riskless yen assets.

Table 9. Markets for Selected Derivative Financial Instruments: Notional Principal Amounts Outstanding
(In billions of U.S. dollars)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Interest rate futures	370.0	487.7	895.4	1,200.8	1,454.5	2,156.7	2,913.0	4,958.7	5,777.6	5,863.4	5,931.1
Futures on short-term instruments	274.3	338.9	721.7	1,002.6	1,271.1	1,906.3	2,663.7	4,632.8	5,422.3	5,475.3	5,532.7
Three-month Eurodollar ¹	229.5	307.8	588.8	671.9	662.6	1,100.5	1,389.6	2,178.7	2,468.6	2,451.7	2,141.8
Three-month Euroyen ²	0.0	0.0	0.0	109.5	243.5	254.5	431.8	1,080.1	1,467.4	1,400.7	1,445.6
Three-month Euro-deutsche mark ³	0.0	0.0	0.0	14.4	47.7	110.0	229.2	421.9	425.7	654.6	526.2
Three-month PIBOR futures ⁴	0.0	0.0	15.7	12.4	23.3	45.8	132.5	228.7	184.6	167.1	209.6
Futures on long-term instruments	95.7	148.8	173.7	198.2	183.4	250.4	249.3	325.9	355.3	388.1	398.5
U.S. Treasury bond ⁵	23.0	26.5	39.9	33.2	23.0	29.8	31.3	32.6	36.1	39.9	45.7
Notional French government bond ⁴	2.1	7.6	7.0	6.1	7.0	11.4	21.0	12.6	12.7	12.4	12.9
Ten-year Japanese government bond ⁶	63.5	104.8	106.7	129.5	112.9	122.1	106.1	135.9	164.3	178.8	145.6
German government bond ⁷	0.0	0.0	1.4	4.2	13.7	20.2	27.8	33.3	41.7	56.7	58.4
Interest rate options ⁸	146.5	122.6	279.2	387.9	599.5	1,072.6	1,385.4	2,362.4	2,623.6	2,741.8	3,277.8
Currency futures	10.2	14.6	12.1	16.0	17.0	18.3	26.5	34.7	40.1	38.3	50.3
Currency options ⁸	39.2	59.5	48.0	50.2	56.5	62.9	71.1	75.6	55.6	43.2	46.5
Stock market index futures	14.5	17.8	27.1	41.3	69.1	76.0	79.8	110.0	127.3	172.2	198.6
Stock market index options ⁸	37.8	27.7	42.9	70.7	93.7	132.8	158.6	229.7	238.3	329.3	380.2
Total	618.3	729.9	1,304.8	1,766.9	2,290.4	3,519.3	4,634.4	7,771.1	8,862.5	9,188.2	9,884.6
North America	518.1	578.1	951.7	1,155.8	1,268.5	2,151.7	2,694.7	4,358.6	4,819.5	4,849.6	4,839.7
Europe	13.1	13.3	177.7	251.0	461.2	710.1	1,114.3	1,777.9	1,831.7	2,241.6	2,831.7
Asia-Pacific	87.0	138.5	175.4	360.0	560.5	657.0	823.5	1,606.0	2,171.8	1,990.1	2,154.0
Other	0.0	0.0	0.0	0.1	0.2	0.5	1.8	28.7	39.5	106.8	59.3

Source: Bank for International Settlements.

¹Traded on the Chicago Mercantile Exchange-International Monetary Market (CME-IMM), Singapore International Monetary Exchange (SIMEX), London International Financial Futures Exchange (LIFFE), Tokyo, International Financial Futures Exchange (TIFFE), and Sydney Futures Exchange (SFE).

²Traded on the TIFFE and SIMEX.

³Traded on the Marché à Terme International de France (MATIF) and LIFFE.

⁴Traded on the MATIF.

⁵Traded on the Chicago Board of Trade (CBOT), LIFFE, Mid-America Commodity Exchange (MIDAM), New York Futures Exchange (NYFE), and Tokyo Stock Exchange (TSE).

⁶Traded on the TSE, LIFFE, and CBOT.

⁷Traded on the LIFFE and the Deutsche Terminbörse (DTB).

⁸Calls plus puts.

index of all companies listed on the Tokyo Stock Exchange First Section) recorded a drop of about 10 percent, whereas the TOPIX bank index fell nearly 30 percent.

A significant rebound in Japanese equity prices rests, therefore, on the resolution of several sources of uncertainty about the Japanese economy and the state of the financial system. The broader market is likely to be held back by weakness in financial sector equities and the weak local investor demand for equities. A resolution of the financial system problems in Japan would have significant benefits in terms of resolving uncertainty about the prospects for the Japanese economy and would help in reviving investor demand.

Expanding and Maturing Derivative Markets

Three general tendencies have shaped the evolution of global derivative markets. The first and most

important tendency is that over-the-counter (OTC) derivative markets are increasingly becoming the hub of derivative trading. In 1987, the notional principal of outstanding OTC interest rate and currency swaps and interest rate options was 20 percent larger than the global exchange-traded derivative market, but by 1995 it was 90 percent larger. In 1995, turnover on the major North American, European, and Asia-Pacific derivative exchanges actually declined while OTC activity rose by 40 percent. A broad survey conducted by the Bank for International Settlements (BIS) estimated outstanding OTC contracts (foreign exchange, interest rate, equity, and commodity) at \$47.5 trillion in early 1995 (after adjusting for double counting and including estimated gaps in reporting). The notional principal of outstanding OTC currency and interest rate swaps and interest rate options reported by the International Swaps and Derivatives Association (ISDA) in a less comprehensive survey was more than \$24 trillion in 1996. Although the OTC markets continued to be the major sources of

Table 10. Notional Principal Value of Outstanding Interest Rate and Currency Swaps*(Of the members of the International Swaps and Derivatives Association; in billions of U.S. dollars)*

	1987	1988	1989	1990	1991	1992	1993	1994	1995	June 1996
Interest rate swaps										
All counterparties	682.9	1,010.2	1,502.6	2,311.5	3,065.1	3,850.8	6,177.3	8,815.6	12,810.7	15,584.2
Interbank (ISDA member)	206.6	341.3	547.1	909.5	1,342.3	1,880.8	2,967.9	4,533.9	7,100.6	...
Other (end user and brokered)	476.2	668.9	955.5	1,402.0	1,722.8	1,970.1	3,209.4	4,281.7	5,710.1	...
End user	476.2	668.9	955.5	1,402.0	1,722.8	1,970.1	3,209.4	4,281.7	5,710.1	...
Financial institutions	300.0	421.3	579.2	817.1	985.7	1,061.1	1,715.7	2,144.4	3,435.0	...
Governments ¹	47.6	63.2	76.2	136.9	165.5	242.8	327.1	307.6	500.9	...
Corporations ²	128.6	168.9	295.2	447.9	571.7	666.2	1,166.6	1,829.8	1,774.2	...
Unallocated	0	15.5	4.9	0	0	0	0	0	0	...
Brokered	0	0	0	0	0	0	0	0	0	...
Currency swaps										
All counterparties	365.6	639.1	898.2	1,155.1	1,614.3	1,720.7	1,799.2	1,829.7	2,394.8	2,589.4
(Adjusted for reporting of both sides)	(182.8)	(319.6)	(449.1)	(577.5)	(807.2)	(860.4)	(899.6)	(914.8)	(1,197.4)	(1,294.7)
Interbank (ISDA member)	71.0	165.2	230.1	310.1	449.8	477.7	437.0	422.5	619.9	...
Other (end user and brokered)	294.6	473.9	668.1	844.9	1,164.6	1,243.1	1,362.2	1,407.2	1,774.9	...
End user ³	147.3	237.0	334.1	422.5	582.3	621.5	681.1	703.6	887.5	...
Financial institutions	61.9	102.7	141.7	148.2	246.7	228.7	221.9	227.1	378.5	...
Governments ¹	33.9	54.0	65.6	83.2	96.9	110.6	135.8	122.1	190.2	...
Corporations ²	51.6	76.5	116.5	191.1	238.7	282.2	323.4	354.4	318.7	...
Unallocated	0	3.8	10.3	0	0	0	0	0	0	...
Brokered	0	0	0	0	0	0	0	0	0	...
Interest rate options⁴	0.0	327.3	537.3	561.3	577.2	634.5	1,397.6	1,572.8	3,704.5	4,190.1
Total (interest rate and currency swaps for all counterparties plus interest rate options)	865.6	1,657.1	2,489.0	3,450.3	4,449.5	5,345.7	8,474.5	11,303.2	17,712.6	21,068.9

Sources: Bank for International Settlements, *International Banking and Financial Market Developments*; and International Swaps and Derivatives Association, Inc. (ISDA).

¹Including international institutions.

²Including others.

³Adjusted for double counting because each currency swap involves two currencies.

⁴Including caps, collars, floors, and swaptions.

growth in 1996, exchange activity increased on renewed interest in EMU. The volume of exchange-traded futures and options (currency, interest rate, equity) rose to 1.2 billion contracts at end-1996, and the total notional principal outstanding approached \$10 trillion (Tables 9 and 10).¹⁰

Important reasons for the OTC markets' dominance are the flexible, customized nature of OTC contracts and regulatory advantages. These regulatory advantages may soon be reduced in the United States. Legislation pending in the U.S. Congress would amend the Commodity Exchange Act to recognize the distinction between "professional" and "retail" market segments, and to reduce the regulatory burden for

product innovation and reporting requirements in the professional segment. U.S. exchanges are hailing the legislation as contributing to a "truly more competitive industry world-wide."¹¹ In the medium term, exchanges could benefit from the activity in the new exchanges in emerging markets and by introducing new emerging-market products.

The second tendency in global derivatives markets has been consolidation, in both the exchange-traded and OTC market. In the U.S. OTC markets, the top eight banks account for about 94 percent (almost \$19 trillion at end-1996) of the total notional principal outstanding. Consolidation in the exchange-traded markets is exemplified by the proliferation of trading links among exchanges. In Europe, consolidation has also occurred via mergers and closures, reflecting the

¹⁰Derivative markets are large relative to the size of cash markets: for example, outstanding debt securities in the EU, Japan, and North America totaled \$25.8 trillion in 1995, whereas the notional principal of related derivatives amounted to \$44.5 trillion.

¹¹"Mixed Reactions to U.S. Regulatory Changes" (1997).

increase in competition between exchanges as they seek to establish market shares before the introduction of the euro. For instance, the Swiss (Soffex) and German (Deutsche Terminbörse, or DTB) exchanges announced in late 1996 a strategic alliance that will create a common technical platform for trading derivatives and integrate the two clearing and settlement systems. In the United Kingdom the takeover of the London Commodity Exchange by the London International Financial Futures Exchange (LIFFE) expanded significantly the range of products traded, and in Ireland the Irish Futures and Options Exchange was closed in 1996.

The third tendency is commoditization (or standardization). The predominant derivative product, the swap contract, has become commoditized, and as a result swap margins have narrowed sharply as product volumes have risen. The tendency toward commoditization has been attributed to well-publicized losses incurred on derivative exposures some years ago, the riskiness of which may not have been fully understood. Although losses were not always associated with exotic products, they stimulated an awareness and reevaluation of the purposes and risks of derivative instruments. As a result, there was a sharp and widespread reduction in the demand for exotic, highly leveraged structures, and a shift toward well-understood structures—especially currency and interest rate swaps. Nonetheless, some structures that have traditionally been regarded as exotic (such as digital and barrier structures) have become mainstream, commoditized products.¹²

The continued expansion of derivatives has been fueled by structural changes, such as the trend toward securitization and the increased understanding of the capabilities of derivatives for unbundling, packaging, and reallocating cyclical and balance-sheet risks. A mark of their success is that derivatives are now an essential component of risk management in the major international banks and corporations. The growing use of derivatives has been aided by advances in analytical and information technology for evaluating and pricing the risks inherent in derivative contracts. Despite their rapid growth, there is still capacity for entities in a wide range of advanced and developing countries to take fuller advantage of them. One example is credit derivatives—one of the fastest-grow-

ing derivative product areas—which represent an unbundling of credit risk from various types of on-balance-sheet and off-balance-sheet items (see Annex III). Given the size and concentration of credit risk exposures, and the absence of an active secondary market for most of them, this market is likely to develop very rapidly.

Derivative markets present significant challenges for both private and public risk management, as demonstrated by the recent loss of about £85 million by a U.K.-based derivatives dealer due to its mispricing of interest rate options. In November 1996, the Basle Committee on Banking Supervision and the International Organization for Securities Commissions' Technical Committee released a joint survey on the trading and derivatives activities of international banks and securities firms. The study reported continuing improvements in disclosure practices but also noted that significant disparities in practices existed. The study urged banks and securities firms to strengthen further both their quantitative and qualitative disclosure. Market transparency will also be enhanced by the agreement of central banks to establish a system of regular derivatives reporting by major dealers, beginning in June 1998. Aggregate data on global trading activities will be collected in a manner that avoids double counting and publicly released to enable firms to assess their own activities in relation to the markets.

Appendix

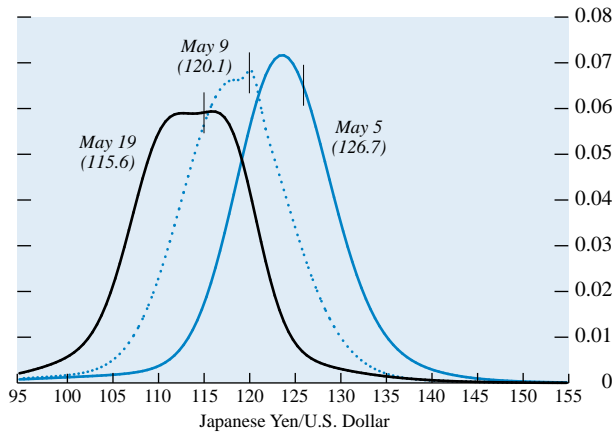
Market Surprised by Yen's Appreciation in May 1997

Based on the information in options prices, the yen's sharp appreciation against the dollar during the second and third weeks of May 1997 was of a magnitude that market participants had considered quite unlikely, even as late as May 5 (see Figure 11). As the yen appreciated rapidly between May 5 and May 9, market-based price distributions began to reflect a significant probability of large further appreciations. By May 19, market expectations about the future value of the yen were very diffuse and assigned roughly equal probability to the yen-dollar rate in early September being anywhere within a seven-yen interval.

The evolution of market expectations over this period is illustrated in the figure, which plots market-based probability distributions for the yen-dollar exchange rate in early September. These distributions are derived from prices on the Chicago Mercantile Exchange's options on the September 1997 futures contract. Each day's distribution is based on prices for 50 options, offering protection over the range from ¥98 to ¥138 per dollar.

¹²A digital (or all-or-nothing) option is an option with a fixed, predetermined payoff if the underlying instrument is at or beyond the strike price at expiration; the value of the payoff is unaffected by the magnitude of the difference between the underlying and the strike price. Barrier options are path-dependent options for which both the payoff pattern and survival to the nominal expiration date depend not only on the final price of the underlying instrument but also on whether the instrument sells at or through a barrier price during the life of the option. Examples of barrier options include down-and-out and up-and-in puts and calls, early trigger CAPS options, and a variety of similar instruments.

Figure 11. Distribution for Yen/Dollar Exchange Rate in Early September 1997 Implied by Options Prices on May 5, 9, and 19, 1997



Sources: Bloomberg Financial Markets L.P.; and IMF staff calculations using data from the Chicago Mercantile Exchange.

Note: Spot exchange rates are shown in parentheses and indicated by vertical lines.

The distribution estimated from prices on May 5 was symmetric—indicating equal likelihood associated with appreciations and depreciations of similar magnitude—and assigned relatively little probability to appreciations of the size experienced over the next two weeks. On this day, the market assigned less than 6 percent probability to the yen-dollar spot rate being below 115 in early September. On May 6, the yen appreciated 1 percent against the dollar. Between May 5 and May 6, the distribution (not shown) shifted to the left and began to exhibit some leftward skew—associating somewhat larger probabilities with large appreciations of the yen. Nonetheless, on May 6, the probability assigned to the yen-dollar rate being below 115 in early September was still less than 9 percent. Between May 6 and May 9, the yen appreciated from 125 ¥/\$ to 120 ¥/\$. By May 9, the distribution had shifted down along with the spot rate, and the skew had become much more pronounced. At this point the market was pricing into the options a significant probability of further large appreciations in the months ahead. By May 19, after the rate had fallen to near 115, the distribution had returned to a near-symmetrical shape, but assigned roughly equal probability to yen-dollar rates within the range of 111 to 118.