II

Developments, Trends and Issues in the Mature Financial Markets

During the last twelve months, mature markets have experienced severe turbulence.[1] Following the crisis in Russia and amid news of difficulties at a major hedge fund (LTCM), these markets experienced volatility of a magnitude rarely seen; credit and liquidity spreads rose sharply in U.S. money and credit markets, major equity markets declined significantly, and the yen underwent the sharpest one-day adjustment against the dollar since the collapse of the Bretton Woods system.[2] Mature markets rebounded fairly quickly, though U.S. credit spreads remain somewhat above precrisis levels. As the turbulence subsided, mature markets came to be predominantly influenced by domestic and regional conditions, against the background of a variety of important structural and conjunctural developments. The onset of European Economic and Monetary Union (EMU), the economic and financial difficulties in Japan, low and declining inflation, and the divergence of economic conditions and policies among the major countries have also importantly influenced financial markets. On balance, by end-June 1999, short-term interest rates were generally lower, long-term rates were mixed, equity prices were higher, and the dollar was mixed against the other major currencies compared with a year earlier.

The Mature Market Turbulence and Its Aftermath[3]

Run-Up to the Mature Market Turbulence

Until July 1998, the mature financial markets in the United States and Europe were generally buoyant, extending a period of several years during which spreads on a wide range of instruments narrowed and the price of credit risk was increasingly compressed (a process that was little affected by the Asian crisis).[4] Government bond yields continued to decline,

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[1]This section focuses principally on developments during the period June 1998 to June 1999. The data cutoff is June 30, 1999.

[2]In particular, the dollar declined against the yen by 7.7 percent; as noted in Chapter III, emerging market liquidity also dried up during the period.

[3]The description of the turbulence in this section updates Chapter III in International Monetary Fund (1998b).

[4]See Chapter IV in International Monetary Fund (1998a).

while equity prices recorded further strong gains—especially in continental Europe, where markets surged in a number of countries by 45–65 percent over end-1997 levels. Contributing to this buoyancy were very subdued inflation, solid domestic demand growth in most countries, and increased confidence in a successful launch of EMU. In addition, the mature financial markets were bolstered by a "flight to quality" as investors shifted funds away from Asia and some other emerging markets. Despite these generally favorable developments, there were some signs of a weakening in sentiment in the months leading up to July 1998. Major stock market indices in the United States and the United Kingdom continued to advance, but the gains were increasingly narrowly based, and market indices for "small cap" stocks (which had underperformed "large cap" stocks for some time) began to weaken. Also, yield spreads on below-investment-grade bonds in the United States began to widen by about 90 basis points from their historic lows of about 240 basis points in mid-1997 prior to the Asian crisis, probably owing to concerns about the advanced state of the business cycle and rising risks of an economic slowdown, and the effects of the Asian crisis on corporate earnings.[5] In other countries, the equity market weakened in Japan, where domestic economic conditions continued to worsen, and also came under downward pressure in countries with strong trade links to Asia or heavy reliance on commodity exports (notably, Australia, Canada, New Zealand, and Norway); exchange rates weakened in a number of these countries as well.

In June and July, credit spreads widened further, and the boom in U.S. and European equity markets stalled. Spreads on lower-quality U.S. corporate bonds, which averaged around 300 basis points during the early 1990s, crept up from a low of about 250 basis points around the end of April to about 320 basis points in July.[6] Spreads on investment-grade bonds widened more modestly. Equity markets in the United States and Europe generally peaked in mid-July. While it is difficult to identify a particular event that triggered the subsequent correction, several factors may have led investors to reassess the sustainability of historically high equity market valuations and compressed credit spreads. First, the negative effects of the Asian crisis on output growth and corporate earnings were becoming more visible, particularly in the United States. In addition, it was increasingly apparent that the contraction in the Asian emerging market economies was much deeper than initially expected, and that prospects for early recovery in Japan had diminished. Signs that the situation was deteriorating in Russia also contributed to concerns that the emerging market

[5]This widening coincided with a general weakening in U.S. corporate earnings growth and an increase in the number of domestic corporate credit rating downgrades relative to upgrades. Salomon Smith Barney's announcement on July 6 that it planned to close its U.S. bond-arbitrage unit appeared to reduce liquidity in the U.S. bond markets, which may have contributed to the rise in spreads in July and the increase in volatility later in the year.

[6]Some market analysts have suggested that the adverse effect of widening credit spreads on balance sheets may have reduced market participants' willingness to roll over exposures to Russia once problems began to appear.

crisis might spread beyond Asia. Bank stocks were hit particularly hard, in part unwinding earlier sharp gains but also reflecting concerns about bank exposures to emerging markets (Figure 2.1).

Mature Market Turbulence

The situation deteriorated sharply in the second half of August as the devaluation and unilateral debt restructuring by Russia sparked a period of turmoil in mature markets that is virtually without precedent in the absence of a major inflationary or economic shock. Neither Russia's relative importance in the world economy nor the size of bank exposures to Russia can fully explain the magnitude of the market movements that followed.[7] The crisis in Russia sparked a broad-based reassessment and repricing of risk, especially regarding emerging market investments, and a large-scale portfolio rebalancing across a range of global financial markets. In subsequent weeks, conditions in many of the mature financial markets deteriorated sharply, increasing the pressures on financial institutions, including LTCM. The equity market sell-off intensified, largely wiping out the gains recorded earlier in the year. In the United States, equity markets bottomed out in late August, roughly 20 percent below their highs, while European markets continued to decline through the first half of October, falling on average by about 35 percent. At the same time, the decline in government bond yields accelerated, taking yields to their lowest levels since at least the mid-1960s and in some cases since World War II, as investors increasingly sought to shift funds into the safest and most liquid assets (Figure 2.2). In the six-week period between mid-August and early October, for example, government bond yields fell by about 70 basis points in Germany, 110 basis points in the United Kingdom, and 120 basis points in the United States, implying price gains in the range of 6–11 percent (equivalent to about 50 to 100 percent at an annual rate) for the benchmark 7- to 10-year bonds. Elsewhere in Europe, yield spreads over German rates widened to their highest levels of the year within the euro area (among both core and peripheral countries), and even more dramatically outside the prospective euro area, with spreads for Denmark and Sweden widening by 30–40 basis points in less than a month.

Corporate bond spreads widened more sharply starting in the second half of August, and in some instances, new debt issuance dropped off markedly (Figure 2.3; Table 2.1). Comprehensive data are most readily available for the United States, where the corporate bond market is relatively large and well developed (Figure 2.4). Yield spreads over U.S. treasury bonds for below-investment-grade bonds widened from about 375 basis points immediately before the Russian debt restructuring to almost 600 basis points by mid-October, the highest level since the collapse of the U.S. junk bond market at the beginning of the 1990s. For the most part, the rise in spreads on higher–grade credits reflected the fall in treasury bond yields rather than a rise in actual borrowing costs. However, below investment

[7]In 1998, Russia accounted for roughly 1 percent of world GDP and 1.2 percent of world trade; bank claims on Russia accounted for less than 1 percent of BIS reporting banks' total claims.

Table 2.1. Major Industrial Countries: Outstanding Amounts of Private Sector Domestic Debt Securities[1]

(In billions of U.S. dollars)

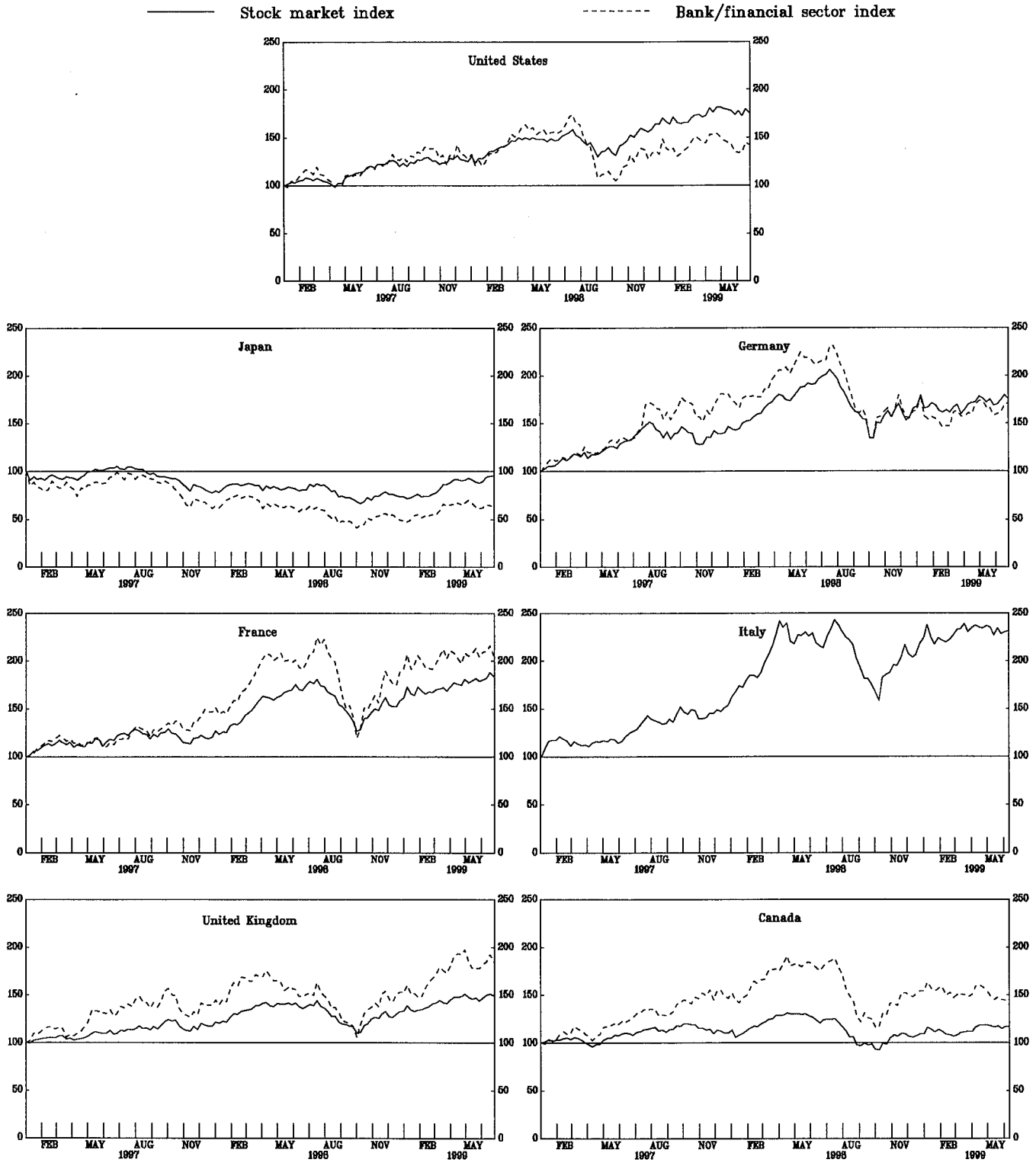
	1993	1994	1995	1996	1997	1998	1998 Q1	1998 Q2	1998 Q3	1998 Q4
United States	3,418.2	3,651.0	4,072.3	4,605.6	5,218.1	5,946.0	5,486.4	5,656.7	5,802.3	5,946.0
Japan	1,325.6	1,497.3	1,529.7	1,468.5	1,316.6	1,434.1	1,298.6	1,192.0	1,211.7	1,434.1
Germany	738.5	867.2	1,033.5	1,030.5	961.1	1,137.5	956.7	997.4	1,126.7	1,137.5
France	541.2	572.4	605.3	567.7	471.8	484.2	453.6	444.3	488.9	484.2
Italy	300.0	325.4	356.5	411.6	348.9	363.8	333.5	339.9	361.9	363.8
United Kingdom	134.2	170.2	187.3	261.0	311.9	388.3	336.9	347.5	372.1	388.3
Canada	45.7	45.8	50.5	63.8	77.2	82.7	79.8	82.8	81.0	82.7
Total	6,503.4	7,129.3	7,835.1	8,408.7	8,705.6	9,836.6	8,945.5	9,060.6	9,444.6	9,836.6

Source: Bank for International Settlements.

[1]Debt securities issued in domestic currency by residents of the country indicated. Includes short-term paper (e.g., commercial paper).

Figure 2.1. Major Industrial Countries: Stock Market Price Indices, January 1, 1997-June 25, 1999 1/

(National currency; week ending January 2, 1997=100)

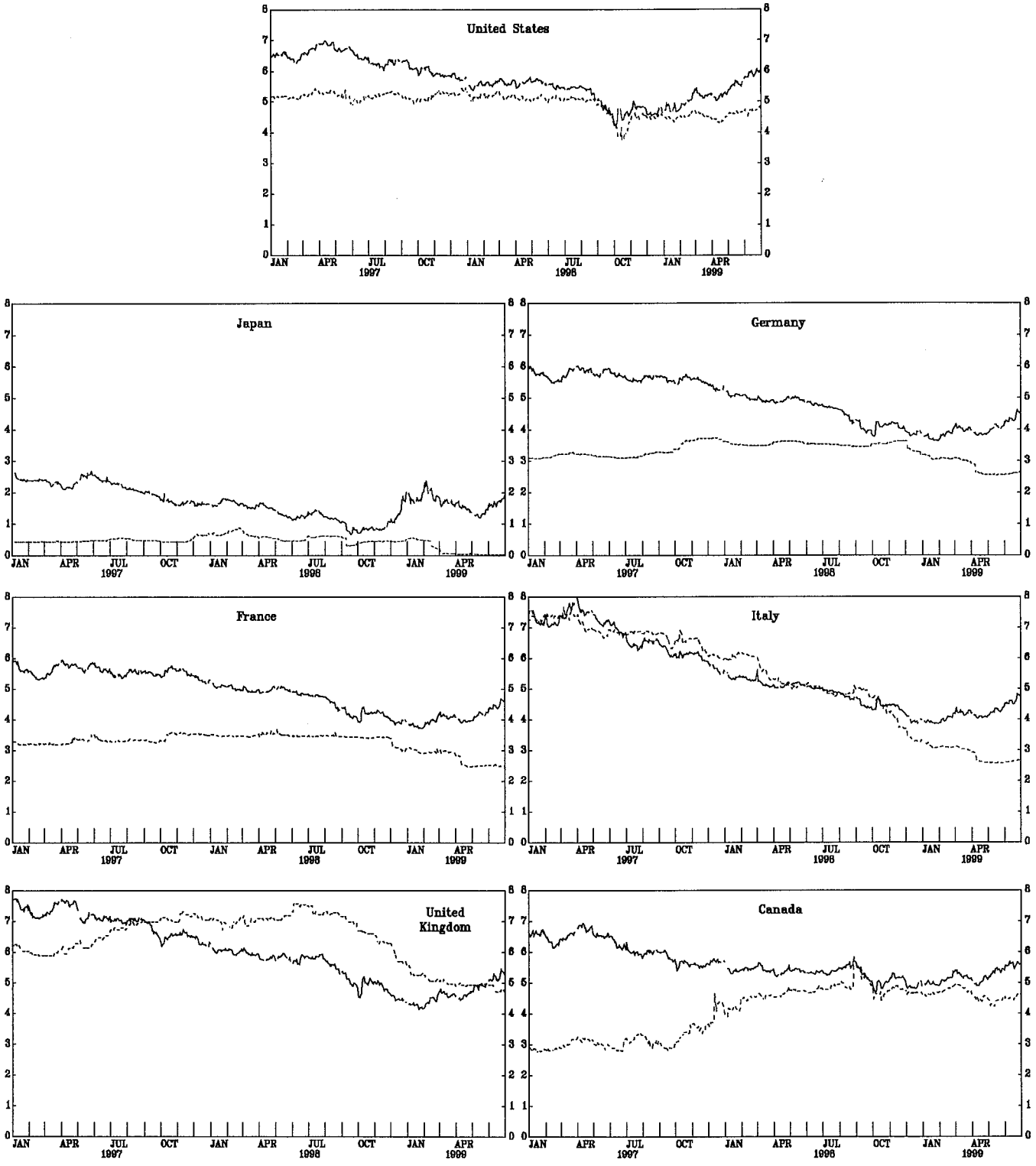


Source: Bloomberg Financial Markets L.P.

1/ For United States, Standard & Poor's 500 index; for Japan, Price Index of Tokyo Stock Exchange; for Germany, DAX 100 Index; for France, Societe des Bourses Francaises 250 Index; for Italy, Milan Stock Exchange MIB Telematico Index; for United Kingdom, Financial Times Stock Exchange All-Share Index; and for Canada, Toronto Stock Exchange 300 Composite Index.

Figure 2.2. Major Industrial Countries: Nominal Interest Rates, January 1, 1997–June 30, 1999

(In percent)

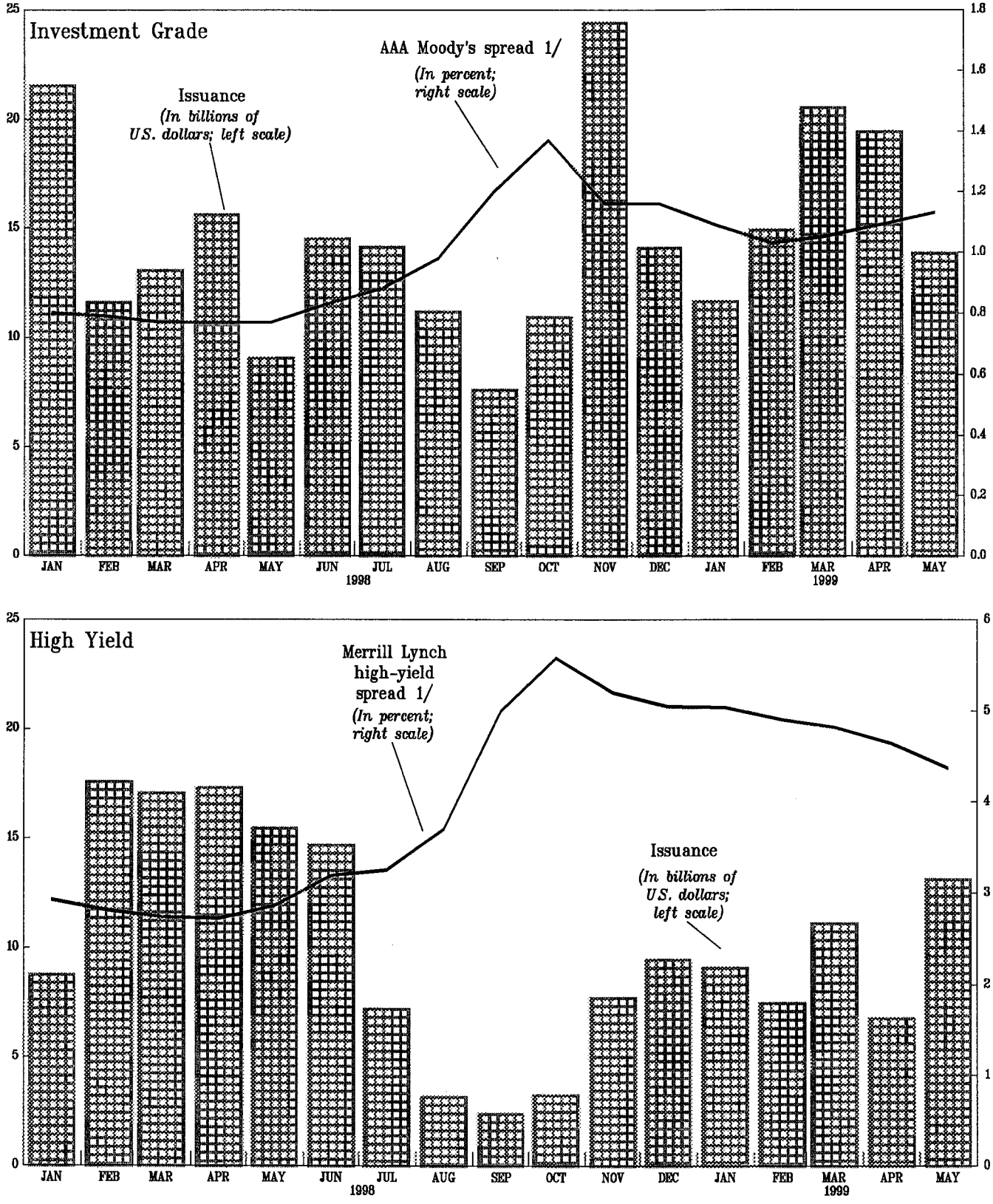


Sources: WEFA, Inc.; and Bloomberg Financial Markets L.P.

1/ Yields on government bonds with residual maturities of 10 years or nearest.

2/ Three-month maturities: treasury bill rates for United States and United Kingdom; interbank rate for Germany, France, Italy, and Canada; and deposit rate for Japan.

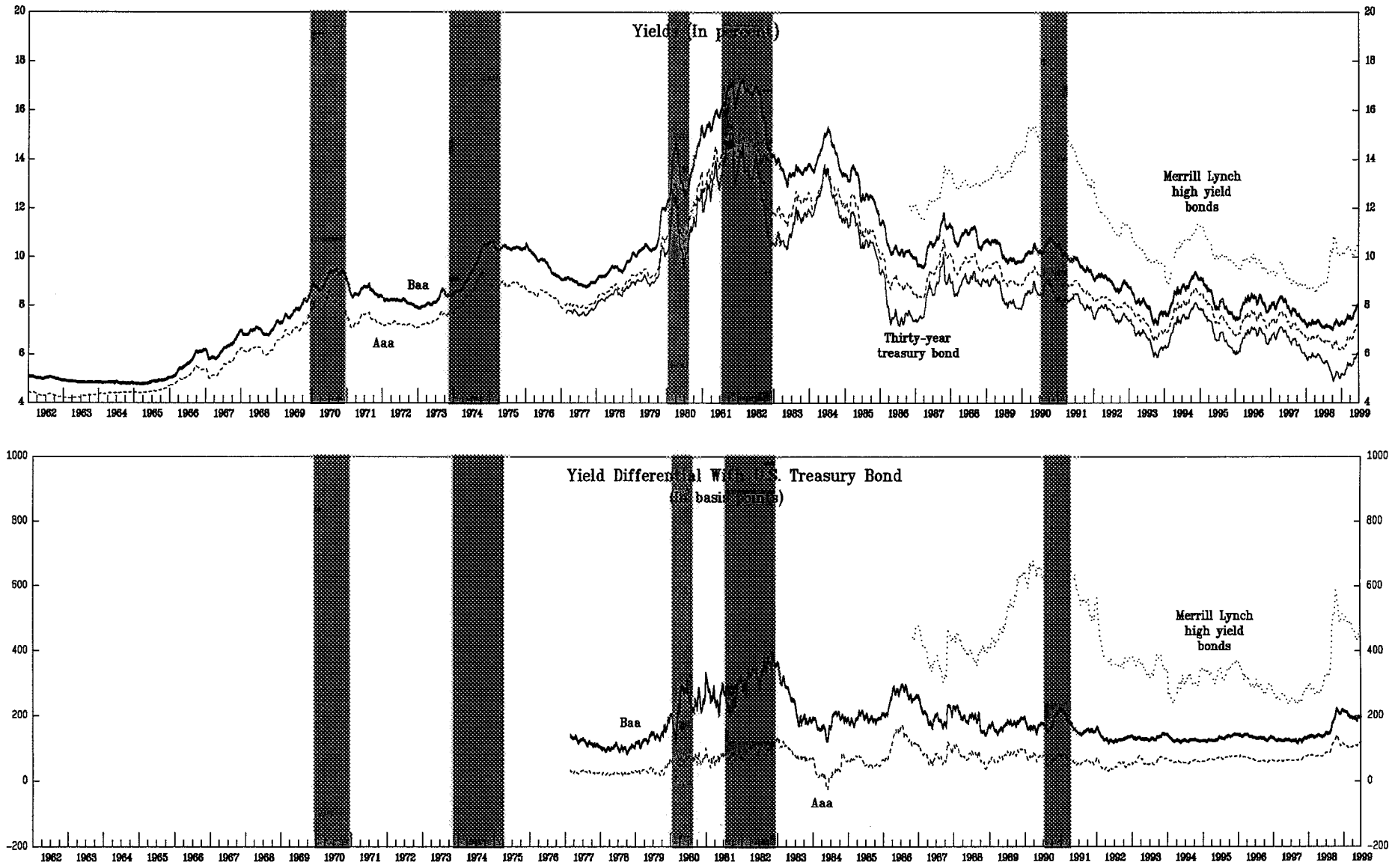
Figure 2.3. United States: Corporate Bond Market, January 1998–May 1999



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

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

Figure 2.4. United States: Yields on Corporate and Treasury Bonds,
January 5, 1962–June 25, 1999 1/



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

1/ Weekly data; the Moody's ratings of corporate bonds are as shown in the panels. Yields on 30-year treasury bonds of constant maturities are used for the U.S. treasury bond. The shaded regions indicate recession periods.

grade, the spread widening was also associated with a sharp increase in nominal yields, and the spread of below-investment-grade bonds over investment-grade bonds widened substantially (a similar increase in credit differentiation was observed in the commercial paper market). The volume of U.S. high-yield bonds issued in October fell to about $2 billion, compared with a monthly average of roughly $15 billion in the second quarter (a substantial though less pronounced drop-off was observed in the issuance of U.S. investment-grade bonds). Corporate bond spreads also appear to have widened in some European markets, though time-series data on these spreads are much more limited. For example, spreads on AA euro sterling bonds over U.K. gilts widened from about 90 basis points to 130 basis points during the same period.[8] There were also reports that high-yield corporate bond issuance slowed sharply in continental Europe.

Starting in August, the deteriorating conditions in long-term fixed income markets gave rise to concerns that a widespread "credit crunch" might materialize in the United States. In the event, firms in large measure were able to avoid financing difficulties by substituting other sources of finance for corporate bonds during the disruption.[9] In August and September, some firms issued commercial paper to delay issuance of corporate bonds. Others took out bank loans, or drew on credit lines, notwithstanding some tightening of credit standards by banks (some firms drew on credit lines that had been extended and priced during more tranquil periods).

In September and early October, indications of heightened concern about liquidity and counterparty risk emerged in some of the world's deepest financial markets. A key development was the news of difficulties in, and ultimately the near-failure of, a U.S. hedge fund—LTCM—which had large highly leveraged and complex positions across a broad range of markets, including over-the-counter (OTC) derivatives markets, and substantial links with a range of U.S. and European financial institutions. Although a private rescue of LTCM, organized with the help of the New York Federal Reserve Bank, was announced on September 23, the market reverberations intensified in the ensuing weeks as previous positions were unwound and as concerns increased about the extent to which other financial institutions might be in trouble or face a need to unload assets into illiquid markets at distressed prices.

In response to these developments and the rapid deleveraging, market volatility increased sharply, and there were some significant departures from normal pricing

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[8]Individual U.K. corporate bond spreads also widened significantly during the third quarter. See Bank of England (1998), p. 6.

[9]See Board of Governors of the Federal Reserve System (1999a).

relationships among different asset classes.[10] In the U.S. treasury market, for example, the spread between the yield on "on-the-run" and "off-the-run" treasuries widened from less than 10 basis points to about 15 basis points in the wake of the Russian debt restructuring, and to a peak of over 35 basis points in mid-October, suggesting that investors were placing an unusually large premium on the liquidity of the "on-the-run" issue (Figure 2.5).[11] Spreads between yields in the eurodollar market and on U.S. treasury bills for similar maturities also widened to historically high levels, as did spreads between commercial paper and treasury bills and those between the fixed leg of fixed-for-floating interest rate swaps and government bond yields, pointing to heightened concerns about counterparty risk. Interest rate swap spreads widened in currencies including the U.S. dollar, deutsche mark, and pound sterling. In the U.K. money markets, the spread of sterling interbank rates over generalized collateral repo rates rose sharply during the fourth quarter, partly owing to concerns about liquidity and counterparty risk (and also reflecting a desire for end-of-year liquidity).[12]

Foreign exchange markets also experienced a bout of severe turbulence. Notwithstanding the growing current account imbalances, the U.S. dollar had continued to strengthen on a multilateral basis through mid-August, remaining relatively stable against major European currencies but rising further against the Japanese yen and currencies of the major commodity-exporting countries (Figure 2.6). As the emerging market crisis took on global dimensions, however, the dollar began to weaken amid increased concerns about the downside risks to U.S. growth and a shift in market expectations about the direction of U.S. monetary policy from modest tightening to significant easing.[13] These developments, combined with signs in Japan of greater progress with long-awaited bank reform (discussed in Annex II) and additional moves there toward fiscal and monetary stimulus, significantly altered the balance of risks perceived by investors with yen-denominated exposures. The initial weakening of the dollar was relatively orderly; it fell by less than 10 percent against both the yen and the deutsche mark between mid-August and early October. However, the situation changed in the week beginning October 5 when the dollar fell by about 15 percent

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[10]While the observed movements in market prices suggest problems of reduced liquidity and perhaps broader disruption of normal market functioning, reports of such problems remain largely anecdotal.

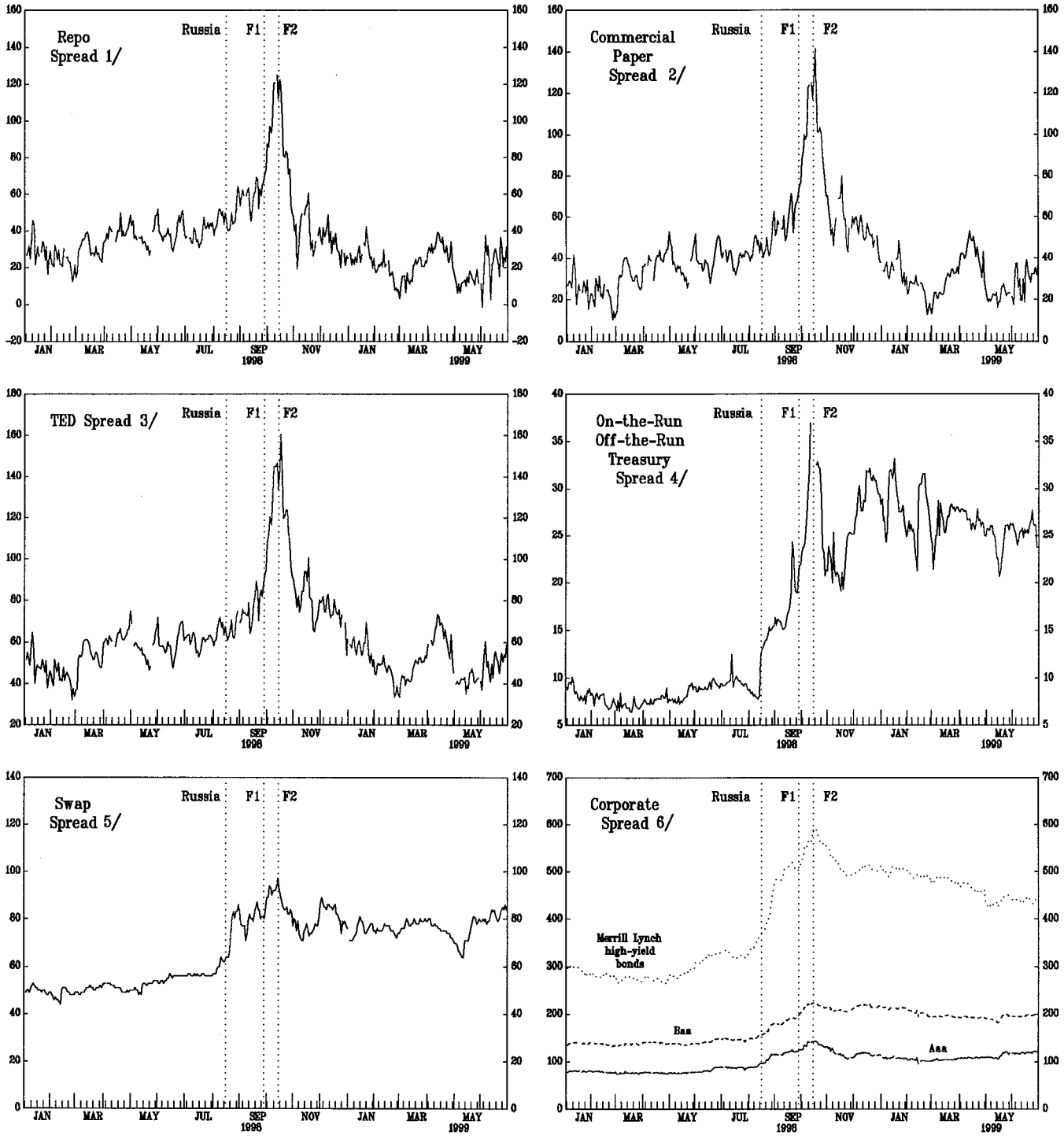
[11]This particular comparison refers to the spread between the 25-year and the 30-year benchmark treasury, but a similar pattern was observed for other maturities. On-the-run securities are the latest issue of a particular maturity. Off-the-run securities are the previous issues of the same maturity.

[12]See Bank of England (1999b), p. 16.

[13]For example, the implied yield on the eight-month federal funds futures contract fell from about 5.6 percent in May and June to 4.25 percent by mid-October, suggesting that market participants expected a sizable easing over the subsequent months.

Figure 2.5. United States: Developments in Fixed-Income Securities Markets, January 1, 1998–June 30, 1999

(In basis points)



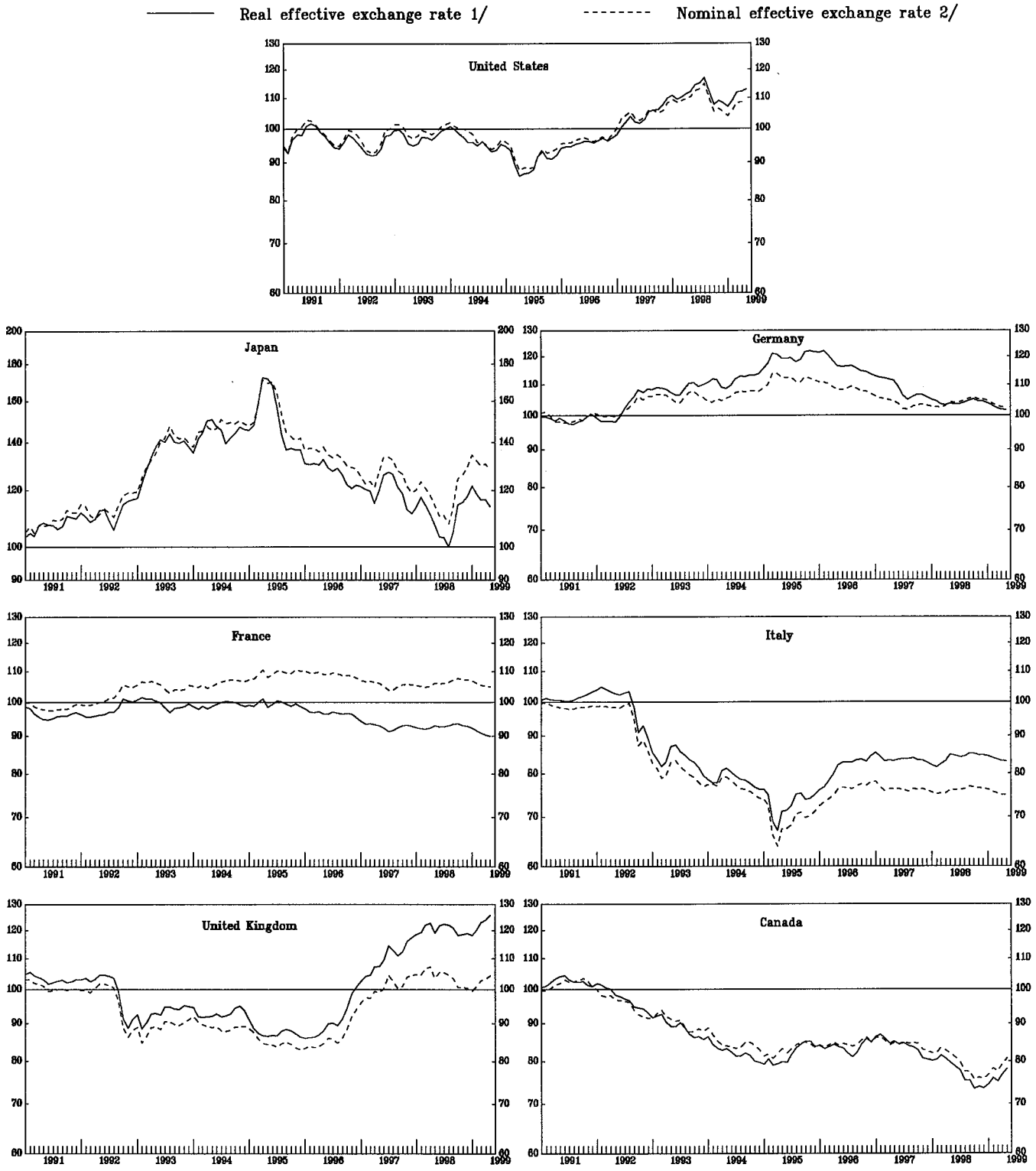
Sources: Bloomberg Financial Markets L.P.; and Merrill Lynch.

Note: The vertical lines represent the following: Russia = Russian debt moratorium (August 17, 1998); F1 = Federal Reserve interest rate cut (September 29, 1998); and F2 = Federal Reserve interest rate cut (October 15, 1998).

1/ Spread between yields on 3-month U.S. treasury repos and on 3-month U.S. treasury bill.
2/ Spread between yields on 90-day investment grade commercial paper and on 3-month U.S. treasury bill.
3/ Spread between 3-month U.S. dollar Libor and yield on 3-month treasury bill.
4/ Spread of 25-year U.S. treasury bond over a 30-year on-the-run U.S. treasury bond.
5/ Spread of fixed-rate leg of 10-year U.S. dollar interest rate swaps over yield on 10-year U.S. treasury bond.
6/ Spread over 30-year U.S. treasury bond.

Figure 2.6. Major Industrial Countries: Effective Exchange Rates, January 1991–May 1999

(Logarithmic scale; 1990=100)



1/ Defined in terms of relative normalized unit labor costs in manufacturing, as estimated by the IMF's Competitiveness Indicators System, using 1989–91 trade weights.

2/ Constructed using 1989–91 trade weights.

against the yen in the space of three days, including the largest one-day movement in the yen/dollar rate since the collapse of the Bretton Woods system. This latter adjustment mainly reflected a sharp general appreciation of the yen: the dollar declined by less than 2 percent against the deutsche mark over the same period (Figure 2.7). It also coincided with an unusually abrupt steepening of mature market yield curves outside Japan, as bond yields rose from their historic lows while short rates continued to fall. Over the same week, for example, the gap between 3-month and 10-year rates widened by about 85 basis points in the United States, 50 basis points in Germany, and 60 basis points in the United Kingdom.

These dramatic moves in the yen/dollar rate and in major credit markets are difficult to explain in terms of shifts in economic fundamentals alone. Instead, the large price movements in foreign exchange and credit markets were a particularly visible manifestation of a global move by investors (including a number of HLIs) to close out open positions and reduce leverage in the wake of the heightened market turmoil. For example, the sharp rise in the yen against the dollar appears to have reflected a large-scale unwinding of yen-denominated exposures—the "yen carry trade"—the effects of which were amplified by technical factors linked to stop-loss orders and dynamic hedging strategies.[14] Also, as securities prices fell, market participants with leveraged securities positions sold those and other securities to meet margin calls on those positions, adding to the decline in prices. The decline in prices and rise in market volatility also led arbitrageurs and market-makers in the securities markets to cut positions and inventories and withdraw from market making, reducing liquidity in securities markets and exacerbating the decline in prices. In this environment, signs that pressures were building on LTCM, an important market-maker and provider of liquidity in securities markets, and considerable uncertainty about how much an unwinding of positions by LTCM and similar institutions might contribute to selling pressure fed concerns that the cycle of price declines and deleveraging might accelerate.[15]

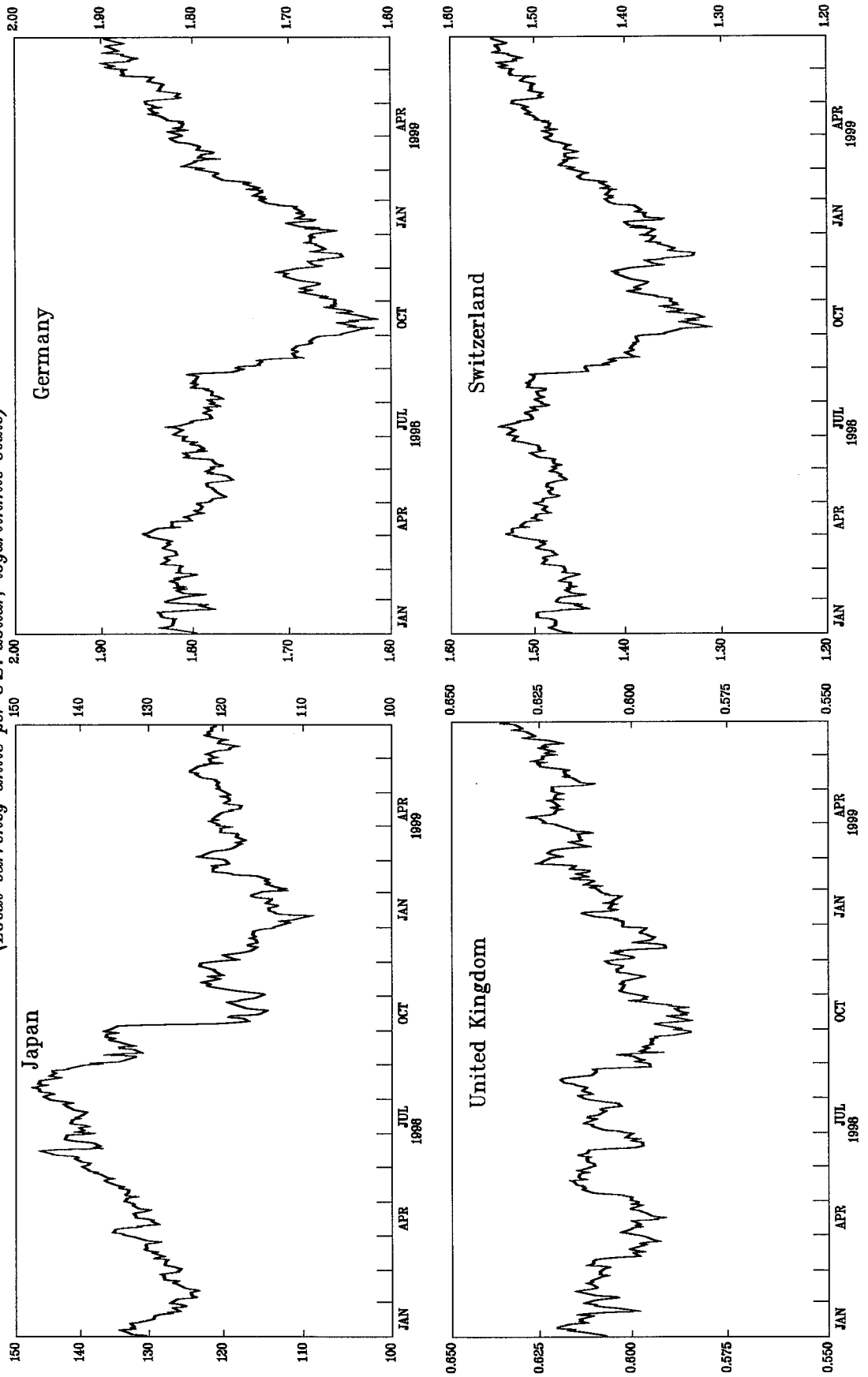
In response to these developments, the U.S. Federal Reserve Board began to cut interest rates starting in late September. An initial cut of ¼ of 1 percentage point in the target federal funds rate was announced following the Federal Open Market Committee (FOMC) meeting on September 29 but failed to have a significant effect in calming markets; spreads continued to widen, equity markets fell further, and volatility continued to increase. Against this background, the Federal Reserve followed up on October 15 with ¼ of 1 percentage point cuts in both the federal funds target and the discount rate, a move that proved to be the key policy action that stemmed and ultimately helped reverse the deteriorating trend in market sentiment. The easing—coming so soon after the first rate cut and outside a regular FOMC meeting (the first such move since April 1994)—sent a clear signal that the U.S. monetary authorities were prepared to move aggressively if needed to ensure the normal functioning of financial markets. Elsewhere, the Bank of Japan reduced the guideline for the

[14]See Box 3.1 in International Monetary Fund (1998b) for a discussion of the yen carry trade.

[15]See the discussion in Chapter IV.

Figure 2.7. Selected Countries: Bilateral U.S. Dollar Exchange Rates, January 1, 1998–June 30, 1999

(Local currency units per U.S. dollar; logarithmic scale)



Source: Bloomberg Financial Markets L.P.

uncollateralized call rate by about 25 basis points to ¼ percent on September 9, and official interest rates have been reduced since late September in Australia, Canada, and Europe. Furthermore, EMU central banks indicated that central bank rates might converge at the levels prevailing in core countries. While these moves were motivated primarily by domestic considerations, they have also played a helpful role from a global perspective by contributing to the broad easing of monetary conditions in the industrial countries.

Starting in mid-October after the Federal Reserve's second cut in interest rates, some calm began to return to money and credit markets. Money market spreads declined quickly to precrisis levels, while credit spreads declined more slowly and remained somewhat above precrisis levels, probably reflecting the deleveraging (a return to the highly compressed credit spreads that prevailed before the Russian crisis was probably neither likely nor desirable).[16] Except for low-grade credits, actual borrowing costs in mature markets did not appear to have increased significantly during the episode and may even have declined for many borrowers during the latter part of 1998. Issuance of long-term debt began to recover, though in November surveys suggested that banks were tightening lending conditions and there were signs of a renewed rise in short-term spreads. The Federal Reserve cut both the federal funds target and the discount rate by ¼ of 1 percentage point at the FOMC meeting on November 17, noting that although financial market conditions had settled down materially since mid-October, unusual strains remained. Short-term spreads subsequently declined. The calming effect of the rate cuts suggested that the turbulence stemmed primarily from a sudden and sharp increase in pressures on (broadly defined) liquidity, including securities market liquidity, triggered by a reassessment of risk.

Developments in Money and Credit Markets Since the Turbulence

From November 1998, as the turbulence waned, U.S., European, and Japanese money and credit markets were predominantly influenced again by domestic and regional conditions, including continued strong growth in the United States, the EMU process in Europe, and weak economic growth, financial system difficulties, and policy responses in Japan.

Toward the end of 1998, as the effects of the turbulence waned and the flight to quality reversed, U.S. fixed-income markets turned their attention to the mounting pressures on Brazil. Market participants hedged or unloaded exposures well in advance, and in the

[16]The spread between off-the-run and on-the-run 30-year U.S. treasury bonds also remained above levels attained prior to the crisis, probably reflecting deleveraging and a decreased appetite for arbitrage.

event, the realignment and floating of the real during January 13–15 had little effect on long-term credit spreads or short-term money market spreads.[17]

It became increasingly clear in early 1999 that although credit risk had been repriced and credit differentiation had increased as a result of the turbulence, access of most U.S. firms to credit had not been permanently reduced.[18] Spreads of high-yield and Baa-rated bonds over Aaa-rated bonds remained wide, though tiering (differentiation of credit risks) in the commercial paper market decreased. U.S. corporate bond spreads against U.S. treasuries and dollar swap spreads remained above precrisis levels; risk also appeared to have been repriced in deutsche mark and sterling swaps and U.K. corporate bonds.[19] Despite the repricing of risk in U.S. markets, issuance of commercial paper and corporate bonds resumed apace, and bank lending expanded at rates similar to early 1998 (though there were some indications that terms of bank lending remained tighter than before the turbulence, and high-yield issuance was less buoyant than in the first half of 1998).[20]

At the same time, economic data pointed to continued strong growth in the United States, and fixed-income yields began to reflect concerns that monetary policy might need to be tightened to contain the risk of inflation, particularly in view of the easing that had taken place during the second half of 1998. Between end-December 1998 and mid-May 1999, long-term interest rates rose strongly; indicators of the expected stance of monetary policy, such as the slope of the yield curve and the federal funds futures rate, increased as well. The FOMC adopted a tightening bias at its May 18 meeting, and yields subsequently rose further in anticipation that the FOMC would tighten policy following its end-June meetings. By mid-June 1999, the yield on the 30-year treasury bond had risen by about 100 basis points from its end-1998 level to just above 6 percent, and the federal fund futures rate implied about 60 basis points of tightening over the second half of 1999. On June 30, as had been widely anticipated, the FOMC raised the target for the federal funds rate by 25 basis points to 5 percent, and also removed its bias toward tightening; long-term treasury yields declined, and stocks rallied.[21]

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[17]For a detailed discussion of the events surrounding the floating of the real, see International Monetary Fund (1999), pp. 44–49.

[18]A rise in default rates on speculative-grade debt in 1998 also contributed to the repricing of credit risk.

[19]See Bank of England (1999b, 1999c).

[20]LTCM had returned to profitability by this time, and outperformed some other high-profile hedge funds in the first quarter of 1999.

[21]In contrast, spot short-term rates were relatively little changed over the first half of 1999, outside a decline in treasury bill rates through April and a subsequent rebound (which gave rise to a temporary widening of money-market spreads).

European money and credit markets continued to be influenced by the convergence in euro-area policies and the planned introduction of the euro. The convergence in euro-area interest rates was only temporarily interrupted during the turbulence. Following the turbulence, the trend decline in euro-area government bond yields resumed. Spreads of euro-area government bonds against comparable German bond yields narrowed, even briefly turning negative for Italy. Short-term interest rates converged as well, and were closely aligned within the euro area by the end of the year.

The introduction of the euro was successful and smoother than some had expected. In January 1999, some minor "teething troubles" were experienced in the Trans-European Automated Real-Time Gross Settlement Express Transfer System (TARGET) payments system, as banks adapted to the new system, but were quickly resolved. There was also some volatility in overnight interest rates in the first few months of 1999, and the euro overnight index average (EONIA) declined to below the ECB's refinancing rate in March, as banks adapted to the new arrangements for monetary policy operations.[22] Overall, by May 1999, European money markets were transferring funds across countries and institutions with reasonable efficiency, as financial systems and institutions that had excess liquidity were able to supply it to those that needed liquidity. However, some features of the euro financial infrastructure continued to limit recourse to cross-border transactions, including swaps and repos. These features, in some cases deriving from the EMU financial structure, included differences in market structure (such as the extent of bilateral interbank credit lines), national differences in infrastructure (such as payments and security settlement systems), and national differences in policies (tax, legal, and regulatory environments, including differences in the legal treatment of repo operations).

Following the launch of EMU, euro-area government bond spreads against Germany were broadly stable until the second quarter, when government bond rates rose amid rising U.S. bond rates. Spreads for Spain, Portugal, and Italy widened amid signs of divergent economic conditions within the euro area and concerns about the relaxation of Italy's deficit target. Apart from such considerations, remaining spreads have reflected a variety of factors, including differences in liquidity, perceived credit risk, trading conventions, and market infrastructure (including clearing and settlement systems) among countries.[23]

The September 1998 *International Capital Markets* report identified a number of remaining challenges for EMU authorities in the areas of financial crisis prevention and management, especially in light of the ongoing integration of European money and financial

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[22]These developments and associated structural issues (including payment and securities settlement systems) are described in more detail in Annex I.

[23]These factors also determined the composition of the euro-area benchmark yield curve, which market participants viewed as composed of German securities at the long end and French and German securities at the short end.

markets and banking system consolidation and restructuring. Since the publication of that report, there has been important progress toward meeting those challenges, including intensified efforts to enhance coordination and cooperation among European Union (EU) supervisors and regulators. First, the Banking Supervision Committee of the European Central Bank (ECB) supports the Eurosystem decision-making bodies in their supervisory tasks, and serves as a forum for the exchange of views on supervisory policies and practices that are not directly related to the tasks of the Eurosystem. Second, a discussion is ongoing on a possible further strengthening of multilateral cooperation and information sharing among supervisors. Moreover, the Banking Supervision Committee is focusing on the issue of cooperation between the Eurosystem and supervisory authorities in payments systems oversight. Third, a Commission Communication on an Action Plan for Financial Services was endorsed by the European Council in Cologne in June 1999. A key element of this action plan concerns the need to ensure that the EU supervisory and regulatory framework is appropriate for a single financial market. Concrete actions and an indicative timetable for implementation have been identified, and the Commission will pursue the plan with input from a high level group of representatives of finance ministers. This group has already served as a forum for the exchange of views on, inter alia, the issue of consolidated versus sectoral supervision, the appropriate relationship between central banks and supervisory authorities, the need for intensified cooperation among supervisory organizations, and the possible future need for some form of European-level supervision. Fourth, in February 1999, members of the Forum of European Securities Commissions signed a multilateral European memorandum of understanding on surveillance of securities activities.

In the area of crisis management, there has been agreement within the Eurosystem on responsibilities for emergency liquidity assistance. In the event of a liquidity problem involving an otherwise solvent institution, the provision of emergency liquidity assistance would be the responsibility and decision of the relevant national central bank. If and when this liquidity assistance might be large enough to have a monetary policy impact, it would entail consultation with the ECB and might also require a decision by the ESCB about whether such liquidity assistance should be provided. In this context, emergency liquidity assistance is defined as liquidity provided to an illiquid but not insolvent institution to contain any potential systemic risk or contagion if this were perceived to be a possibility. Regarding cases of solvency problems, ministers of finance, the European Commission, and the ECB have jointly begun to assess whether the current instruments and responsibilities would need to be adjusted for the EMU environment.

Japanese money and credit markets have been influenced by important policy measures to address banking system weakness and continuing macroeconomic difficulties, and by the acceleration of corporate restructuring efforts. Against this background, money and credit markets in Japan have increasingly diverged from international markets during the period under review.

Concerted efforts by the Bank of Japan to maintain monetary and financial stability caused short-term interest rates to decline sharply; overnight rates declined to virtually zero. In the second half of 1998, the overnight call rate fell steeply to about 25 basis points as

domestic economic activity slowed and the Bank of Japan eased monetary policy. (Some international banks were reportedly quoting *negative* yen LIBOR (London interbank offered rate) rates in November 1998.) The Bank of Japan eased further in February 1999, and announced that it would "encourage the uncollateralized overnight call rate to move as low as possible." The overnight call rate subsequently declined to 3 basis points, essentially zero net of brokerage fees. The low rate of remuneration on call money led to a shift of funds from call money to bank deposits, and the call money market contracted sharply.[24] Liquidity pressures eased considerably, as onshore funding spreads declined and the Japan premium fell steeply to around zero.[25]

During the period under review, supply and demand shifts in the Japanese government bond (JGB) market gave rise to considerable volatility in JGB yields. A strong increase in demand drove yields on 10-year JGBs from about 160 basis points at end-June to about 80 basis points in mid-November, amid repatriation of funds and heightened concerns about the domestic economic situation and problems in the banking system. Subsequent concerns that expansionary fiscal policy would strongly boost the supply of JGBs and that support of the market by the Trust Fund Bureau might be cut back sharply contributed to a sharp rebound in JGB yields, which reached about 225 basis points in December. Later, suggestions (and in March 1999, official confirmation) that the Trust Fund Bureau would continue to buy JGBs, and injections of public capital into the major banks, contributed to a subsequent decline in yields and volatility, though both yields and volatility picked up again in the second quarter.[26]

International credit markets were dramatically influenced by developments in the major national markets.[27] In the second half of 1998, lending to mature market borrowers in international credit markets appeared to have been hard hit by the turbulence in mature

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[24]Insurance companies have been particularly active in this shift of funds from overnight call money to bank deposits. Insurance companies, investment trusts, and regional banks are the most important suppliers of funds to the uncollateralized call market. City banks, foreign banks, and regional banks are important borrowers of funds.

[25]The Japan premium is the premium over LIBOR that Japanese banks pay compared with other international banks.

[26]The announcement of measures to increase the appeal of JGBs to international investors may also have contributed to the decrease in volatility. These measures include eliminating the withholding tax on JGB interest paid to nonresidents, encouraging the use of the Bank of Japan registration system, eliminating call provisions in JGBs, permitting stripping of JGBs, and issuing 5-year and 30-year JGBs.

[27]This section discusses lending to borrowers in mature markets. Chapter III discusses lending to emerging markets.

markets. Syndicated lending declined sharply and terms of lending tightened (Table 2.2; Figure 2.8).[28] Net issuance of international bonds (gross issuance less repayments) also declined sharply, as scheduled repayments rose and completed issues declined (Table 2.3). Net issuance of international bonds rebounded strongly in the first quarter of 1999, and announced issuance hit a record high, but syndicated lending continued to fall and loan spreads widened, possibly reflecting a continued withdrawal of Japanese banks and a desire to hold liquid claims;[29] also, there was considerable issuance of euro-denominated international bonds.[30] More generally, the currency composition of international bond issuance reflected broader developments in the major financial markets during the period under review, as yen issuance declined and ECU issuance increased in 1998 (Table 2.4).

Developments in the Major Foreign Exchange Markets Since the Turbulence

As the turbulence eased toward the end of 1998, developments in foreign exchange markets came to be dominated by the introduction of the euro, developments in the Japanese financial system, and the widening divergence in economic conditions between the United States and the other major currency regions (see Box 2.1 for additional perspective on developments in global foreign exchange markets).

Following the start of EMU on January 1, 1999, market participants initially displayed considerable enthusiasm about the new currency, reflecting the successful convergence process and launch of EMU, the promise of efficiency gains from pan-European financial markets, and enhanced policy discipline.[31] Subsequent developments dampened some of this euphoria. In the first quarter of 1999, signs of continued strong growth in the

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[28]Syndicated loan markets apparently continued to thrive in the United States, however (see "Long Live the Loan," p. 67).

[29]In addition, ongoing structural changes in the syndicated loan market have brought terms in the syndicated loan market closer to those in the bond market, so that loan prices more closely reflect prevailing market conditions. These structural changes include the increased participation of institutional investors and investment banks, increased securitization and secondary-market trading, and the introduction of "market flex" features, which allow the repricing or restructuring of arrangements to reflect changes in market conditions during the syndication period.

[30]The dollar remained the main currency of issuance in the first quarter of 1999, with a share of about 50 percent of gross issuance compared with 36 percent for the euro.

[31]Volume in the spot euro/dollar foreign exchange market was thin, compared with trading in the legacy currencies prior to January 1 (Bank of England, 1999a, p. 25; Board of Governors of the Federal Reserve System, 1999b, p. 396).

Table 2.2. Announced International Syndicated Credit Facilities by Nationality of Borrowers

(In billions of U.S. dollars)

	1992	1993	1994	1995	1996	1997	1998	1998 Q1	1998 Q2	1998 Q3	1998 Q4	1999 Q1
All countries	194.0	279.4	477.1	697.8	900.9	1,136.3	957.3	229.9	268.8	233.2	225.4	155.6
Industrial countries	159.6	242.6	422.0	608.3	795.8	970.7	877.0	216.5	243.5	208.8	208.2	148.3
Of which:												
United States	114.8	194.3	312.4	399.0	551.9	674.9	648.8	167.8	190.2	155.7	135.2	105.3
Japan	0.8	0.6	2.5	4.7	6.3	5.9	11.8	1.7	0.6	6.2	3.3	3.9
Germany	0.3	0.9	1.2	13.5	10.1	14.1	13.3	1.2	7.6	1.2	3.3	1.1
France	1.4	5.2	6.8	18.1	21.3	38.5	16.0	3.4	0.6	3.5	8.4	5.3
Italy	3.2	2.0	5.3	15.1	5.7	11.4	5.2	0.3	0.1	1.6	3.1	0.8
United Kingdom	18.3	12.9	28.4	56.3	76.7	103.1	74.7	22.8	16.2	15.4	20.3	17.8
Canada	4.4	7.3	15.0	22.6	25.4	43.3	39.3	5.5	12.3	7.5	14.1	1.8

Source: Bank for International Settlements.

Table 2.3. Outstanding Amounts of International Debt Securities[1]

(In billions of U.S. dollars)

	1993	1994	1995	1996	1997	1998	1999 Q1
All countries	2,027.0	2,400.0	2,720.1	3,139.5	3,506.7	4,316.1	4,446.3
Industrial countries	1,642.5	1,942.2	2,216.1	2,532.4	2,809.6	3,489.5	3,617.7
Of which:							
United States	175.7	203.9	264.1	388.1	552.8	845.0	946.0
Japan	336.8	351.6	351.3	340.1	316.7	318.1	308.5
Germany	119.3	184.7	261.1	335.7	388.5	508.7	526.7
France	152.9	184.5	204.6	214.2	218.7	265.4	271.1
Italy	69.8	84.4	91.8	94.2	96.6	114.8	112.8
United Kingdom	186.5	211.4	224.5	271.5	306.7	362.5	381.8
Canada	146.7	163.9	174.7	180.4	184.7	207.4	204.9
Developing countries	120.6	158.9	181.9	262.3	345.2	394.3	392.4
Offshore centers[2]	10.0	17.4	19.1	35.1	48.7	61.0	67.7

Source: Bank for International Settlements.

[1]Debt securities other than those issued by residents in domestic currency; this includes non-home-currency debt issued by residents and all debt issued by nonresidents.

[2]The Bahamas, Bermuda, the Cayman Islands, Hong Kong SAR, the Netherlands Antilles, Singapore, and other offshore centers.

Table 2.4. Outstanding Amounts and Net Issues of International Debt Securities by Currency of Issue

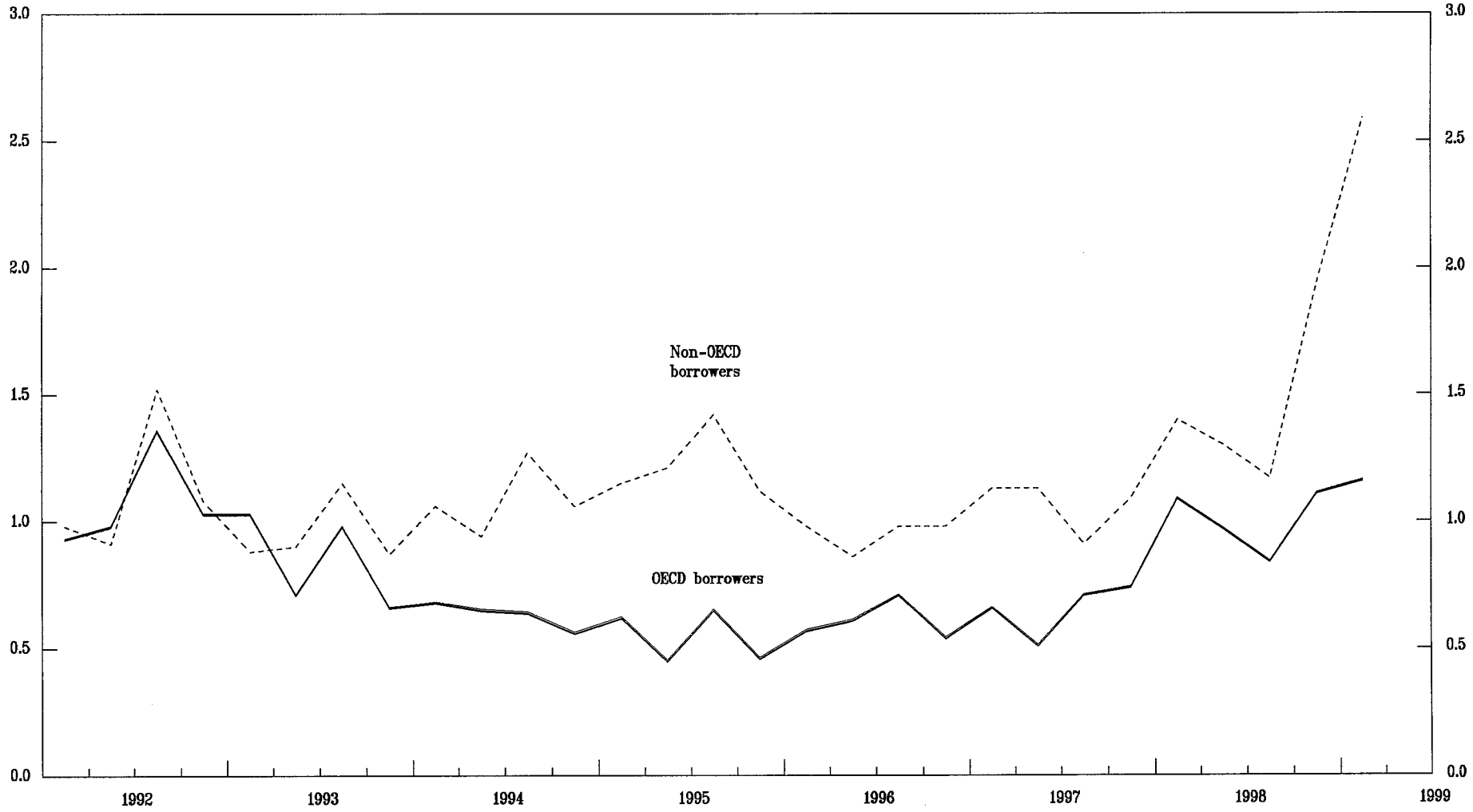
(In billions of U.S. dollars)

	Amounts Outstanding							Net Issues						
Currency	1993	1994	1995	1996	1997	1998	1999 Q1	1993	1994	1995	1996	1997	1998	1999 Q1
U.S. dollar	832.9	899.9	969.8	1,231.8	1,560.7	1,971.9	2,110.3	31.5	73.4	74.2	262.1	332.0	411.1	138.4
Japanese yen	267.9	388.0	451.1	480.6	459.7	487.5	458.0	33.8	106.8	108.3	84.8	34.6	-29.3	-11.9
Deutsche mark	192.5	243.1	312.6	340.2	340.9	440.9	n.a.	31.2	27.5	55.0	53.8	47.3	71.1	n.a.
French franc	92.1	130.5	147.2	166.2	178.5	222.0	n.a.	34.5	27.0	5.2	28.9	34.6	30.3	n.a.
Italian lira	37.4	56.1	66.9	93.1	112.3	137.5	n.a.	13.0	18.4	10.3	23.7	33.2	16.8	n.a.
Pound sterling	154.1	177.6	185.3	235.9	281.1	342.3	352.3	31.7	14.5	10.0	30.8	51.4	59.3	20.4
Canadian dollar	81.5	83.5	83.6	76.9	67.6	55.9	55.4	20.5	6.7	-2.2	-6.4	-6.3	-7.4	-0.8
Spanish peseta	10.6	10.7	13.2	17.8	20.4	22.5	n.a.	3.5	-0.7	1.4	5.8	5.2	0.9	n.a.
Netherlands guilder	44.9	65.6	83.1	93.3	94.1	121.1	n.a.	7.9	14.8	13.5	17.6	13.8	18.9	n.a.
Swedish krona	3.5	5.0	5.3	5.2	4.5	7.4	6.7	0.6	1.0	-0.3	0.1	-0.1	3.1	-0.6
Swiss franc	149.1	161.3	188.8	165.4	152.4	168.0	158.6	-2.3	-6.4	4.3	4.2	-1.2	6.5	3.1
Belgian franc	2.2	2.3	4.2	13.1	12.9	9.9	n.a.	-0.4	-0.3	2.0	9.3	1.6	-4.0	n.a.
ECU/euro	92.6	90.9	90.0	74.2	64.7	157.6	1,192.9	...	-10.3	-6.7	-12.1	-1.4	86.0	113.1
Other	65.8	85.5	119.0	152.8	156.8	171.6	112.2	-8.0	13.0	36.5	34.8	28.6	14.4	-3.8
Total	2,027.1	2,400.0	2,720.1	3,146.5	3,506.6	4,316.1	4,446.4	197.5	285.4	311.5	537.4	573.3	677.7	265.5

Source: Bank for International Settlements, *International Banking and Financial Market Developments,* various issues.

Figure 2.8. Weighted Average Spreads for Announced Facilities in the International Syndicated Credit Market, First Quarter 1992-First Quarter 1999

(In percent)



Source: Bank for International Settlements.

Note: Spreads over LIBOR on U.S. dollar credits.

Box 2.1. The April 1998 BIS Survey of Foreign Exchange and OTC Derivatives Markets

The BIS's triennial survey of foreign exchange and over-the-counter (OTC) derivatives market activity illustrates current trends in the types of instruments and currencies, turnover and amounts outstanding, trading locations, and market participants in these markets.[1] This box reviews the main findings of the survey for the foreign exchange market (the derivatives market is reviewed in the main text of Chapter II).

Average daily turnover in terms of notional amounts in the global foreign exchange market, including spot, outright forward, and foreign exchange swap contracts, was estimated at $1.5 trillion in April 1998, compared with $1.03 trillion in 1995 (see table).[2] This represents an annualized growth rate of 14 percent, compared with an annualized growth rate of 9 percent between the 1992 and 1995 surveys.

The U.S. dollar was the most actively traded currency, reflecting its liquidity, its use as a vehicle currency, and its predominance in trade-related transactions. The dollar was involved in 87 percent of all foreign exchange transactions.[3] The second and third most traded currencies were the deutsche mark and Japanese yen, which contributed 30 percent and 21 percent to total turnover, respectively. While the share of the dollar increased by 4 percent, the share of the mark and yen decreased by 7 percent and 3 percent, respectively. The currency pairs formed by these three currencies together accounted for 40 percent of turnover in all currency pairs worldwide.[4] Even the third most actively traded currency pair, the U.S. dollar/British pound, represented only 8 percent of total global foreign exchange activity. Emerging market currencies contributed less than 15 percent to total daily turnover.

The global foreign exchange business is concentrated in four centers, which together account for 64 percent of total reported turnover: the United Kingdom (32 percent), the United States (18 percent), Japan (8 percent), and Singapore (7 percent). A larger share of U.S. dollar turnover (32 percent) and deutsche mark turnover (34 percent) is conducted in the United Kingdom than in either the United States (18 percent) or Germany (10 percent).

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[1]Bank for International Settlements (1999). This report aggregates and analyzes the surveys conducted by individual central banks.

[2]Direct comparisons of the results of the 1998 survey with results for previous years are potentially affected by three factors: (1) coverage of the survey was expanded from 26 to 43 countries; (2) the reporting date for amounts outstanding was shifted from end-March to end-June; and (3) the reporting basis was changed from location of reporters to worldwide consolidation. However, these distorting factors are believed to have only a small effect. For example, the additional countries included in the 1998 survey contributed only 2.6 percent to total turnover.

These figures are adjusted for changes in the dollar value of nondollar transactions between 1995 and 1998.

[3]Since every foreign exchange transaction involves two currencies, the contributions of all currencies to total turnover sum to 200 percent. For example, suppose there are two spot currency transactions: an exchange of $15 for yen, and an exchange of $5 for euros. In this example, the dollar is involved on one side of all currency transactions, and the yen and euro are each involved on one side of half of all transactions. The dollar contributed 100 percent to turnover, the yen contributed 75 percent, and the euro contributed 25 percent.

[4]Currency pairs sum to 100 percent.

The share of outright forwards and foreign exchange swaps in total foreign exchange market turnover rose from 40 percent in 1989 to 60 percent in 1998. Nevertheless, among currency pairs not involving the U.S. dollar, spot transactions still dominate the business (70 percent of turnover).

The foreign exchange market is dominated by dealers, and is becoming increasingly automated and concentrated. Most trades (73 percent) take place among reporting dealers. Nonfinancial customers account for 20 to 30 percent of turnover in the smaller markets, and even less in larger markets.[5] Business among dealers is mostly (59 percent) across borders, whereas transactions with nonfinancial customers are mostly (68 percent) domestic. The foreign exchange market is also increasingly automated. For example, in the United Kingdom, the share conducted over electronic broking systems increased from 5 percent in 1995 to 11 percent in 1998. In the United States, this share more than tripled from 10 percent to 33 percent during the same period. Consolidation in the financial industry contributed to growing market concentration in the foreign exchange business. The share of the top 10 dealers rose from 44 percent to 50 percent in the United Kingdom, and from 48 percent to 51 percent in the United States. Smaller markets tended to have higher levels of concentration.

[5]A market is defined here as total foreign exchange turnover in a country.

Foreign Exchange and OTC Derivatives Market Turnover[1]

(Daily averages in billions of U.S. dollars)

Category	April 1989	April 1992	April 1995	April 1998
Spot transactions[2]	350	400	520	600
Outright forwards and forex swaps[2]	240	420	670	900
Total "traditional" turnover	590	820	1,190	1,500
Memorandum item:				
Turnover at April 1998 exchange rates	600	800	1,030	1,500
Foreign exchange derivatives turnover	...	...	688	961
Outright forwards and forex swaps	...	...	643	864
Currency swaps	...	...	4	10
Options	...	...	41	87
Other	...	...	1	0
Interest rate derivatives turnover	...	...	151	265
FRAs	...	...	66	74
Swaps	...	...	63	155
Options	...	...	21	36
Other	...	...	2	0
Total derivatives turnover[2]	...	...	880	1,265
Memorandum items:				
Turnover at April 1998 exchange rates	...	...	764	1,265
Exchange-traded derivatives	...	...	1,222	1,373
Currency contracts	...	...	17	12
Interest rate contracts	...	...	1,205	1,361

Source: Bank for International Settlements.

Note: Reported monthly data were converted into daily averages on the assumption of 18.5 trading days in April 1995 and 20.5 trading days in April 1998.

[1] Adjusted for local and cross-border double-counting.

[2] Including estimates for gaps in reporting.

United States indicated that U.S. monetary policy would probably not ease further, while weaker-than-expected growth of GDP in the euro area implied a possible easing in euro-area monetary policy (which materialized in April). Indications of divergent economic conditions among euro-area countries also contributed to concerns about economic tensions within the euro area and added to pressure on the currency. In this environment, the euro weakened by about 8 percent against the dollar during the first quarter of 1999 and another 4 percent during the second quarter. At mid-1999, the euro stood about 6 percent lower against the dollar compared with where the theoretical euro had stood a year earlier.[32]

The behavior of the yen after the turbulence seems difficult to reconcile with the broader environment and its trends prior to the turbulence. The yen traded around an appreciated level against the dollar compared with prior to the turbulence (in real and nominal effective terms, the yen was around 1997 levels), and there were few signs of a renewed trend weakening of the yen against the dollar, despite the widening cyclical divergence between the United States and Japan. Some market analysts suggested that this phenomenon might have reflected the deleveraging of speculative positions against the yen.[33] Others have suggested that repatriation of funds (including in the run-up to the end of the fiscal year) and a scaling back of international activity by Japanese banks may have bolstered the yen. Another view is that market participants may have focused increased attention on the large current account surplus in Japan and the current account deficit in the United States, which are consistent with an appreciation in the yen against the dollar over the medium term. Most recently, some positive economic data released in June might have contributed to further upward pressure on the yen (which was followed by some official intervention).

Developments in the Major Equity Markets Since November 1998

Although the major equity markets staged impressive recoveries from the depths of the turbulence in October 1998, on balance, some markets performed much more strongly than others during the 12 months ending June 1999. In local currency terms, U.S. stocks have risen by about 20 percent since end-June 1998; broad indexes of European stocks have risen by about 5–10 percent (though some country indexes have fallen); Japanese stocks have risen by about 10 percent (and have been unusually volatile over the intervening 12 months). Gains during 1999 have been attributed to various factors, including in the United States, a surprisingly robust pace of economic growth, which has raised hopes for sustained growth in

[32]The theoretical or synthetic euro is a weighted average of the euro's component currencies.

[33]Against this, there were suggestions that some of the technical features that contributed to the earlier volatility—such as the yen carry trade—began to reestablish themselves in the first part of 1999. In April 1999, the Japan Center for International Finance reported that hedge funds had sharply increased their borrowing of yen during February 1999 (see Bloomberg Financial Markets L.P., 1999). Also, short-term outflows in the first quarter might have reflected the yen carry trade (see Nikko Salomon Smith Barney, 1999).

corporate earnings; in Europe, structural changes in equity markets and prospects that corporate consolidation and restructuring will boost corporate earnings; and in Japan, suggestions that recent measures improved the sentiment of foreign investors toward Japanese equities.

In March 1999, the long-running debate over the high valuation level of the U.S. equity market intensified as the Dow Jones Industrial Average (DJIA) crossed the 10,000 mark (Figure 2.9).[34] This strength is remarkable in view of the recent rise in long-term U.S. interest rates, which implies an associated rise in implied dividend growth or fall in the equity risk premium to justify current dividend yields (see Box 2.2). The mature phase of the business cycle suggests that growth in corporate earnings will slow, while a decline in the equity risk premium seems difficult to reconcile with the evident repricing of credit risk in fixed-income markets. Accordingly, concerns about the risk of a correction in equity markets have increased since mid-1998. Nevertheless, observers have suggested a variety of factors that might rationalize some of the recent rise in equity prices. These include broader household participation in the stock market through institutional investors; the increased number of funded pension plans; the strong performance of the U.S. economy, including low inflation and robust productivity growth; and (until 1999) the decline in long-term interest rates.[35]

On balance, these considerations have given rise to concerns about a correction and its possible repercussions. A correction in the U.S. equity market could affect the risk appetite and financial condition of major financial institutions (particularly HLIs), which could adversely affect conditions in fixed-income markets in the United States and conditions in financial markets outside the United States (though reforms have bolstered the U.S. equity market infrastructure; see Box 2.3). It could also adversely affect economic activity in the United States, including through its effect on household wealth and corporate balance sheets, with knock-on effects to global trade and growth.[36]

In Europe, a trend decline in long-term interest rates has worked to support equity valuations over a period of increased uncertainty about the prospects for dividends. A simple

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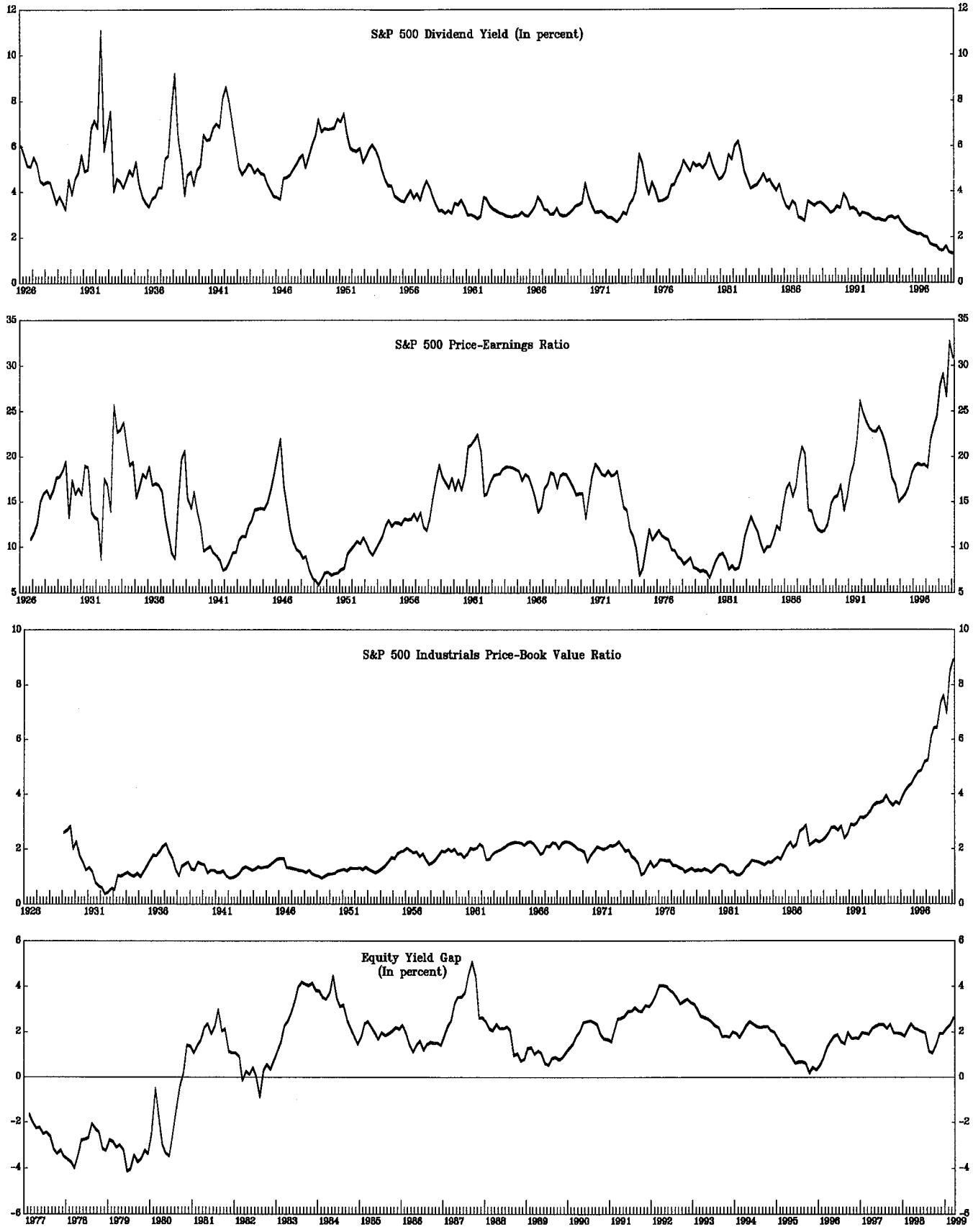
[34]Federal Reserve Chairman Greenspan's speech containing the often-noted reference to "irrational exuberance" was given in December 1996, when the DJIA was around 6400 (see Greenspan, 1996).

[35]See Greenspan (1999a).

[36]See International Monetary Fund (1999), pp. 61–62. Also, a number of U.S. corporations have issued debt and bought back equity in order to raise return on equity (consistent with a view by firms that the equity premium was too large); a stock market correction could put substantial pressure on such firms.

Figure 2.9. United States: Equity Market Performance, 1926-March 1999



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

Box 2.2. Interest Rates and Implied Dividend Growth in G-7 Stock Markets

Since 1995, equity prices have almost tripled in the United States and more than doubled in Canada, France, Germany, Italy, and the United Kingdom (see Figure 2.1). At the same time, ex ante real yields on long-term government bonds have declined to record lows.[1] A key question is how much of the recent increase in equity prices is justified by the environment of low interest rates—which boosts equity valuations by increasing the discounted present value of future dividend flows—and how much is attributable to expectations of higher real growth of future dividends?

The main result of the analysis below is that, in almost all Group of Seven (G-7) industrial countries, the decline in real yields can more or less fully explain the surge in equity valuations. Only in the United States has *real* expected dividend growth increased. In the other G-7 countries, real expected dividend growth implied by current equity prices is actually lower than in 1995. The implications of these results are twofold. On the one hand, current equity valuations do not imply unusually high expected dividend growth rates except in the United States, where they are at historically high levels. On the other hand, in all countries, equity prices appear vulnerable to shocks to expected real interest rates. Leaving expected real dividend growth unchanged at current implied levels, a *permanent* upward shift of *real* yields for all maturities by 25 basis points—or a *permanent* increase in the equity risk premium by a similar amount—can be estimated to result in a fall of equity prices ranging from about 10 to 25 percent depending on the country. If real long-term interest rates returned to their sample average, the expected real growth rate of dividends would need to increase permanently by 1–1½ percentage points in Canada, Germany, France, and the United Kingdom, and by about 3 percentage points in Italy to sustain current equity valuations.

Calculation of Expected Real Growth Rate of Dividends

The conventional equity valuation model states that the current equity price, P_t, is equal to the discounted present value of future dividends expected at time t, D^e_{t+i} ($i \geq 1$),[2]

$$P_t = \sum_{i=1}^{\infty} \frac{D^e_{t+i}}{(1+r_t)^i} , \qquad (1)$$

where r_t denotes the ex ante real cost of equity capital based on the information available at time t.[3] Assuming

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[1]The monthly long-term ex ante real yield, r_t, is obtained from the expression $(1+i_t) = (1+r_t)(1+p^e_t)$, where i_t is the 10-year nominal yield of government bonds and p^e_t is the average 10-year-ahead Consensus CPI inflation forecast. As long-term Consensus inflation forecasts are available only twice a year (in April and October), a 10-year-ahead forecast for the other months is derived by setting the forecast for the current and following year to its Consensus value—which is updated on a monthly basis—and the forecast for the other years to the linearly interpolated value of the April and October long-term forecasts. The sample used in the calculations goes from April 1992 to May 1999, reflecting the availability of Consensus inflation forecasts.

[2]See, for example, Miller and Modigliani (1961).

[3]In Box 3.2 of International Monetary Fund (1998b), similar calculations based on a variation of equation (1) were reported for the United States. There are two reasons why those previous estimates are not comparable with those of this box. First, the cost of equity capital is now expressed in *real* terms, so that the computed implied dividend growth is "real" and not "nominal." Second, all calculations are now in terms of dividends and not earnings (equation (1) in Box 3.2 implicitly assumed a payout ratio of 1).

that expected future dividends grow at a constant rate, g_t^e, such that $D_{t+i+1}^e = (1+g_t^e)D_{t+i}^e$ ($i \geq 0$),[4] equation (1) becomes

$$P_t = D_t \sum_{i=1}^{\infty} \left(\frac{1+g_t^e}{1+r_t} \right)^i , \qquad (2)$$

where g_t^e varies over time together with the information set on which the expectation of future dividends is based. This implies the following relationship between the price-dividend ratio (P_t/D_t), the cost of equity capital, and the future expected real growth rate of dividends:

$$\frac{P_t}{D_t} = \frac{1+g_t^e}{r_t - g_t^e} \qquad (3)$$

Equation (3) can be solved for g_t^e, after setting the cost of equity capital at time *t* equal to r_t+e, where r_t denotes the ex ante real yield on 10-year government bonds and *e* is a constant equity risk premium (assumed to be 6 percentage points).[5]

Assessment

The figure plots the expected real growth rate of dividends for the period April 1992–May 1999 for all G-7 countries, together with the ex ante real yield on 10-year government bonds. The figure also depicts the expected growth rate of dividends that would be consistent with the observed price-dividend ratio, if ex ante real yields were kept constant at their sample average for the period April 1992–May 1999.

The expected growth rate of dividends obtained by keeping ex ante real yields constant at their sample average follows a marked upward trend in all G-7 countries. This suggests that, if a constant real cost of equity capital were used to discount future dividend flows, current equity valuations would imply expectations of record growth rates of future dividends for the period 1992–99.[6] This conclusion changes when the current low real yield environment is taken into account. Only in the United States is the expected real growth rate of dividends based on current real yields close to historical highs. In the other G-7 countries, current equity

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[4]The assumption that expected future dividends grow at a *constant* rate is an approximation that simplifies the analysis.

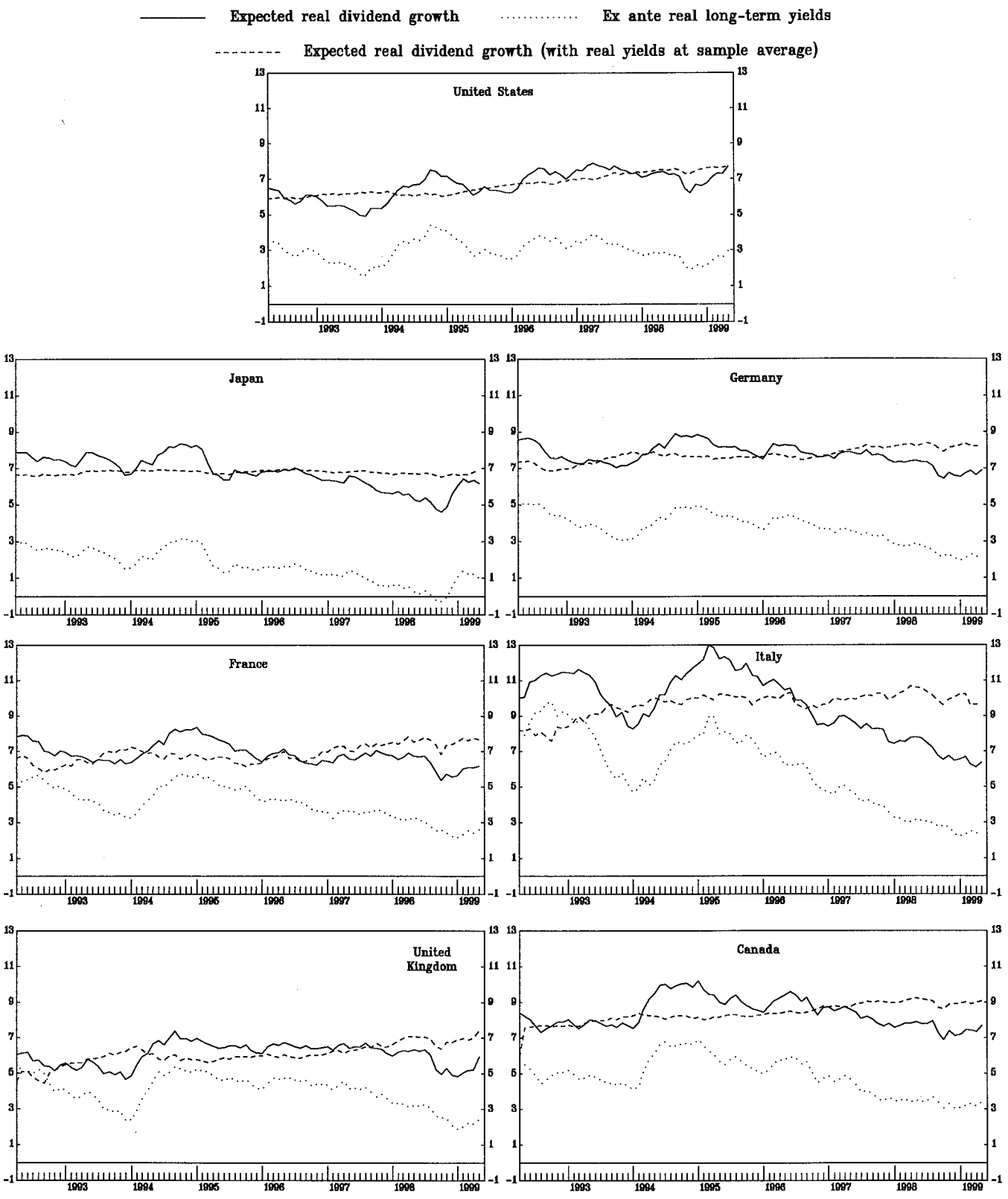
[5]Much empirical research has focused on estimation of the equity premium. Mehra and Prescott (1985) and Campbell, Lo, and MacKinlay (1997) find a risk premium of about 6 percentage points. Different *constant* equity premia would result in almost parallel shifts of the growth rates shown in the figure, leaving their time-series profile essentially unchanged. By contrast, time-varying equity premia would affect the results of this analysis with effects similar to changes in real yields.

Price-dividend ratios are computed as the inverse of the dividend yield for each country equity index. On the basis of the availability of a dividend yield series, the indices selected were: S&P500 for the United States, FTSE100 for the United Kingdom, Nikkei225 for Japan, and Datastream indices for Germany, France, Italy, and Canada. Datastream indices cover a larger set of stocks (200 in Germany and France, 160 in Italy, and 250 in Canada) than the usually reported indices for these countries (DAX, CAC40, COMIT, and TSE) and have similar time-series profiles.

[6]Several studies have recently pointed out, however, that equation (1) can track equity prices and predict future returns reasonably well only with *time-varying interest rates* once analysts' earnings forecasts are taken into account (see, for example, Lee, Myers, and Swaminathan, 1999).

valuations appear consistent with dividend growth expectations that are well below past peaks and suggest that the recent surge in equity prices could largely be explained by lower real yields. Conversely, if the real yields reverted to their sample average, the expected growth rate of future dividends would have to increase considerably to support current valuations.

Major Industrial Countries: Expected Long-Term Growth of Real Dividends and Ex Ante Real Yields, April 1992–May 1999



Sources: Datastream; and IMF staff estimates.

Box 2.3. Ongoing Reforms in the U.S. Equity Market Infrastructure

Concerns about the sustainability of current equity market valuations in the United States have renewed interest in the ability of the current U.S. equity market infrastructure to withstand the effects of a sudden and sustained correction in equity prices, such as the one experienced during the October 1987 market crash. Post-crash episodes of market sell-offs, such as occurred in October 1997, suggest that structural and regulatory changes have significantly improved the ability of equity market participants to withstand the strains associated with massive market sell-offs.[1]

What Was Learned from the 1987 Market Crash?

The reports that examined the 1987 crash emphasized several deficiencies in the infrastructure that led to the market collapse.[2] For example, the Brady report suggested that the interrelationship of market mechanisms (particularly portfolio trading strategies, and clearing and settlement) was largely responsible for the disconnection of cash and futures markets and problems in handling transactions, and that the major systemic risk was the threat posed to the clearing and settlement mechanisms. The report recommended unifying clearing and settlement procedures for stocks, index futures, and stock options. Other reports also emphasized the role of a reassessment of fundamental factors (such as corporate earnings potential and risk premia) in driving the sell-off, and recommended specific reforms, such as cross-margining and guaranteeing agreements, to help ease the severe imbalances in financing needs and increased demand for credit and liquidity created by the need to transfer funds across entities during the margin settlement process. A key recommendation was to ensure that market participants maintain adequate levels of capital and abstain from withdrawing during periods of massive sell-offs. In examining market leverage and volatility, some reports acknowledged that margin requirements did not cover all the risks from price movements, but no unified view emerged on whether these needed to be raised.[3] The reports agreed that, to reduce processing time and potential default risks, the settlement of all transactions had to be done in book-entry form, reduced to three days, and paid in same-day funds. The reports saw a need to enhance the operational capacity of broker-dealers, specialists, and self-regulatory organizations, as the massive sell-off had clearly overwhelmed the capacity to process trading operations.

What Has Been Done Since the 1987 Market Crash?

Reforms since 1987 have attempted to improve coordination, mitigate deficiencies in the operational capacity to process and execute transactions, and reduce financial strains experienced by broker-dealers during periods of market stress.[4] As a result, markets have been able to accommodate the sharp increase in volatility and trading volumes—especially during the October 1997 crash—with minimal delays and disruptions. Market

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[1]See International Monetary Fund (1998a), Box 4.1.

[2]See, among others, U.S. President's Task Force on Market Mechanisms (1988), U.S. Securities and Exchange Commission (1988), and the U.S. President's Working Group on Financial Markets (1988).

[3] The Brady report suggested that margin requirements had to be made consistent between stock index futures, options, and cash stock markets, while the report by the Working Group on Financial Markets concluded that margins for stocks, stock index futures, and options should remain different, and that the benefits of raising them were ambiguous. The report by the Securities and Exchange Commission (SEC) recommended examining equity haircuts for proprietary trading firms, since most of the failures and financial difficulties during the crash involved this type of firm.

[4] For a complete discussion, see Lindsey and Pecora (1997).

participants have also taken additional safeguards to deal with counterparty and liquidity risk. Clearing and settlement activity for equity trading has been fully centralized at the National Securities Clearing Corporation; settlement cycles have been shortened from five to three business days, and transactions are being settled only in book-entry form, with payments effected in same-day funds. Broker-dealers and clearing houses have also raised their capital levels and have established committed credit facilities with banks. Several clearing houses have established cross-margining and cross-guaranteeing agreements among them to ease the strains associated with transferring funds across markets in turbulent times and to withstand the risks posed by the default of a member with large positions across several markets.[5] Regulatory changes have also enhanced market transparency and improved market-makers' incentives to maintain orderly and fair market conditions during sell-offs.[6]

What Are the Potential Gaps?

Looking ahead, the shape and functioning of the U.S. equity market will be largely influenced by the progress in dealing with a rapidly increasing volume of transactions, by efforts to shorten the settlement cycle for cash transactions and to enhance cross-margining and guaranteeing agreements across markets, and possibly, by potential actions to arrest perceived systemic risks posed by market participants and transactions outside regulatory oversight. The October 1997 market correction exposed the need for broker-dealers to expand and test their system capacities for peak trading periods, a problem likely to intensify in the period ahead given the upward trend in volume. Cross-margining between futures and equity options still needs to be expanded and some operational and legal complexities solved. Moreover, recent episodes of market turbulence show that risks of contagion across markets are higher, casting some doubts on whether current capital and margin requirements are sufficient leverage limiting instruments. Supporting evidence for increasing margin requirements to fend off excess leverage and volatility remains weak; however, this evidence may be reconsidered if "fat-tailed events" become more recurrent and linked to transactions by market participants outside the regulatory purview of the SEC and the Commodity Futures Trading Commission.

[5] The Collateral Management System at the National Securities Clearing Corporation helps clearing houses and their members better monitor collateral at various clearing entities. The Collateral Management System could be used to rapidly locate excess collateral if a member were to default, a major hurdle in the 1987 crash.

[6] The SEC established Order Execution Rules for market-makers and specialists to display limit orders that improve OTC market-makers' and specialists' quotes, and also require OTC market-makers and specialists (who own more than 1 percent of the daily volume in any listed security) to publish their quotations. The SEC also established penalties for market withdrawals by market-makers and amended the net capital rule to prevent capital withdrawals without first notifying the SEC at least two business days in advance.

calculation of expected dividend growth implied by the dividend yields for major European markets suggests that such expectations have become less optimistic or stayed the same since mid-1998 (see Box 2.2). Over the medium term, the performance of European equity markets might be supported by structural trends in European equity markets and in the European corporate sector. These include the privatization of major public enterprises; merger and acquisition activity; deeper and more unified European equity markets; an increasing number of defined-contribution pension plans; improved corporate control; and equity buybacks.[37] In the near term, however, prospects are clouded by uncertainties about the pace of recovery in Europe.

The Japanese stock market has been affected mainly by developments in the domestic financial system and concerns about the burden of the corporate-debt overhang and weak economic performance. Between mid-November 1998 and end-February 1999, a period when U.S. and European stocks posted strong gains, the Nikkei was volatile but ended the period virtually unchanged. In the first two weeks of March, the Nikkei abruptly rose by about 12 percent, as the Japanese authorities' efforts to stabilize the financial system and stem the economic decline contributed to an improvement in the sentiment of foreign institutional investors toward the Japanese stock market (which also coincided with a brief rise in the yen against the dollar).[38] Overseas institutional investors reportedly raised benchmark weights on Japanese stocks (often from underweighted positions), bolstering foreign inflows. The pronounced rally in Japanese stock prices lost momentum in April, however, perhaps reflecting concerns that more fundamental measures were needed to put the Japanese economy and financial system on a path to recovery, and concerns that unloading of cross-shareholdings might depress stock prices. In June, stock prices rebounded following the release of favorable economic data.

Developments in Derivatives Markets

Developments in derivatives markets continued to reflect a number of ongoing trends (Tables 2.5–2.9).[39] These trends, including rapid growth, the increasing dominance of the OTC segment compared with the exchange-traded segment, and the preponderance of "plain vanilla" derivatives, are clearly illustrated by the most recent Bank for International Settlements (BIS) triennial survey of foreign exchange and derivatives markets (see Box 2.1 for discussion of the foreign exchange segment of the survey). The survey covers traditional foreign exchange derivatives (outright forwards and swaps); more sophisticated foreign

[37]For example, the German government recently took steps to clarify the tax treatment of equity buybacks (see "European Share Buy-Back Market Poised to Explode," p. 68).

[38]See Annex II. Suggestions that corporate restructuring was accelerating have also recently contributed to positive sentiment about stock prices.

[39]See, for example, International Monetary Fund (1996).

Table 2.5. Currency Composition of Notional Principal Value of Outstanding Interest Rate and Currency Swaps

(In billions of U.S. dollars)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
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	19,170.9	22,291.3
U.S. dollar	541.5	728.2	993.7	1,272.7	1,506.0	1,760.2	2,457.0	3,230.1	4,371.7	5,827.5	6,078.1
Japanese yen	40.5	78.5	128.0	231.9	478.9	706.0	1,247.4	1,987.4	2,895.9	4,441.8	4,313.1
Deutsche mark	31.6	56.5	84.6	193.4	263.4	344.4	629.7	911.7	1,438.9	2,486.2	3,278.2
Pound sterling	29.7	52.3	100.4	242.1	253.5	294.8	437.1	674.0	854.0	1,367.1	1,456.2
Other	39.5	94.8	195.8	371.5	563.3	745.4	1,406.1	2,012.4	3,250.2	5,048.3	7,165.3
Interbank (ISDA members)	206.6	341.3	547.1	909.5	1,342.3	1,880.8	2,967.9	4,533.9	7,100.6	10,250.7	11,961.4
U.S. dollar	161.6	243.9	371.1	492.8	675.0	853.9	1,008.4	1,459.8	2,287.3	2,961.9	3,065.9
Japanese yen	19.5	43.0	61.1	126.1	264.9	441.3	820.8	1,344.8	1,928.5	2,741.8	2,580.2
Deutsche mark	7.9	17.2	32.6	78.4	111.2	175.6	356.1	514.5	831.0	1,409.5	1,863.2
Pound sterling	10.4	17.6	40.0	100.1	106.3	137.2	215.2	315.4	477.7	711.0	860.3
Other	7.1	19.6	42.2	112.1	184.9	272.8	567.4	899.4	1,576.1	2,426.5	3,591.8
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	8,920.2	10,330.0
U.S. dollar	379.9	484.3	622.6	779.9	831.0	906.3	1,448.6	1,770.3	2,084.3	2,865.6	3,012.2
Japanese yen	21.0	35.5	66.9	105.8	214.0	264.7	426.7	642.5	967.4	1,700.0	1,732.9
Deutsche mark	23.7	39.3	52.0	115.0	152.2	168.8	273.7	397.1	607.8	1,076.7	1,415.1
Pound sterling	19.3	34.7	60.4	142.0	147.3	157.6	222.0	358.7	376.2	656.1	596.4
Other	32.4	75.2	153.6	259.4	378.3	472.7	838.4	1,113.1	1,674.4	2.621.8	3,573.4
Currency swaps[1]											
All counterparties	182.8	319.6	449.1	577.5	807.2	860.4	899.6	914.8	1,197.4	1,559.6	1,823.6
U.S. dollar	81.3	134.7	177.1	214.2	292.2	309.0	320.1	321.6	418.9	559.3	666.9
Japanese yen	29.9	65.5	100.6	122.4	180.1	154.3	158.8	170.0	200.0	269.8	266.9
Deutsche mark	10.7	17.0	26.9	36.2	47.6	53.4	69.7	77.0	119.0	121.5	195.4
Pound sterling	5.3	8.9	16.7	24.5	37.4	40.1	44.2	43.0	45.8	68.6	71.5
Other	55.7	93.5	127.8	180.3	250.0	303.7	306.9	303.4	413.8	540.4	622.9
Interbank (ISDA members)	35.5	82.6	115.1	155.1	224.9	238.9	218.5	211.3	310.0	425.0	529.7
U.S. dollar	16.7	34.1	48.2	59.7	86.8	90.9	82.3	80.4	114.3	152.7	189.8
Japanese yen	7.2	18.6	28.3	37.4	60.9	53.9	53.3	49.3	58.0	75.6	70.9
Deutsche mark	1.6	3.0	5.4	7.6	9.4	12.6	12.9	12.0	21.1	25.3	63.8
Pound sterling	1.1	1.6	4.3	6.2	8.4	10.4	7.1	6.5	6.9	11.5	13.9
Other	9.0	25.4	28.8	44.1	59.5	71.1	63.0	63.1	109.8	159.9	191.3
End-user and brokered	147.3	237.0	334.1	422.5	582.3	621.6	681.1	703.6	887.5	1,134.7	1,294.0
U.S. dollar	64.6	100.7	128.9	154.5	205.3	218.2	237.7	241.2	304.7	406.7	477.1
Japanese yen	22.7	47.0	72.2	85.0	119.2	100.4	105.6	120.6	142.1	194.3	196.0
Deutsche mark	9.1	14.0	21.5	28.5	38.2	40.8	56.9	65.0	98.0	96.3	131.6
Pound sterling	4.2	7.3	12.4	18.3	29.1	29.7	37.0	36.6	38.9	57.1	57.6
Other	46.7	68.1	99.0	136.2	190.6	232.6	244.0	240.4	303.9	380.3	431.7

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

[1]Adjusted for double-counting because each currency swap involves two currencies.

Table 2.6. 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	1997	1998
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	5,931.2	7,489.2	7,702.2
Futures on short-term instruments	274.3	338.9	721.7	1,002.8	1,271.4	1,907.0	2,663.8	4,632.9	5,422.3	5,475.3	5,532.7	7,062.5	7,289.8
Three-month eurodollar	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	2,599.1	2,915.1
Three-month euroyen	0.0	0.0	0.0	109.5	243.5	254.5	431.8	1,080.1	1,467.4	1,400.7	1,462.2	1,629.9	1,236.4
Three-month euro-deutsche mark	0.0	0.0	0.0	14.4	47.7	110.0	229.2	421.9	425.7	654.6	626.2	1,016.9	1,210.1
Three-month PIBOR futures	0.0	0.0	15.7	12.4	23.3	45.8	132.5	223.7	184.6	167.1	209.6	212.2	133.7
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	426.7	412.4
U.S. treasury bond	23.0	26.5	39.9	33.2	23.0	29.8	31.3	32.6	36.1	39.9	45.7	72.1	61.1
Notional French government bond	2.1	7.6	7.0	6.1	7.0	11.4	21.0	12.6	12.7	12.4	12.9	14.9	9.5
Ten-year Japanese government bond	63.5	104.8	106.7	129.5	112.9	122.1	106.1	135.9	164.3	178.8	145.6	118.0	142.3
German government bond	0.0	0.0	1.4	4.2	13.7	22.5	34.3	47.6	49.1	74.8	94.2	82.5	63.7
Interest rate options[1]	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	3,639.9	4,602.8
Currency futures	10.2	14.6	12.1	16.0	17.0	18.3	26.5	34.7	40.1	38.3	50.3	51.9	38.1
Currency options[1]	39.2	59.5	48.0	50.2	56.5	62.9	71.1	75.6	55.6	43.5	46.5	33.2	18.7
Stock market index futures	14.5	17.8	27.1	41.3	69.1	76.0	79.8	110.0	127.7	172.4	195.9	211.5	321.0
Stock market index options[1]	37.8	27.7	42.9	70.7	93.7	132.8	158.6	229.7	238.4	329.3	378.0	776.5	866.5
Total	618.3	729.9	1,304.8	1,767.1	2,290.7	3,520.1	4,634.5	7,771.2	8,862.9	9,188.6	9,879.6	12,202.2	13,549.2
North America	518.1	578.1	951.7	1,155.8	1,268.5	2,151.8	2,694.7	4,358.6	4,819.5	4,849.6	4,837.4	6,326.5	7,317.8
Europe	13.1	13.3	177.7	251.2	461.5	710.8	1,114.4	1,778.0	1,831.8	2,241.9	2,828.6	3,587.4	4,411.9
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	2,229.9	1,776.7
Other	0.0	0.0	0.0	0.1	0.2	0.5	1.9	28.7	39.9	107.0	59.6	58.5	42.7

Source: Bank for International Settlements.

[1]Calls and puts.

Table 2.7. Notional Value of Outstanding Interest Rate and Currency Swaps of ISDA Members

(In billions of U.S. dollars)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
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**	**19,170.9**	**22,291.3**
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	10,250.7	11,961.4
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	8,920.2	10,330.0
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	8,920.2	10,330.0
Financial institutions	300.0	421.3	579.2	817.1	985.7	1,061.1	1,715.7	2,144.4	3,435.0	6,274.8	7,394.9
Governments[1]	47.6	63.2	76.2	136.9	165.5	242.8	327.1	307.6	500.9	552.4	924.2
Corporations[2]	128.6	168.9	295.2	447.9	571.7	666.2	1,166.6	1,829.8	1,774.2	2,093.0	2,010.9
Unallocated	0.0	15.5	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brokered	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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**	**3,119.3**	**3,647.3**
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	1,559.6	1,823.6
Interbank (ISDA member)	71.0	165.2	230.1	310.1	449.8	477.7	437.0	422.5	619.9	850.0	1,059.4
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	2,269.3	2,587.9
End-user[3]	147.3	237.0	334.1	422.5	582.3	621.5	681.1	703.6	887.5	1,134.6	1,294.0
Financial institutions	61.9	102.7	141.7	148.2	246.7	228.7	221.9	227.1	378.5	452.4	569.5
Governments[1]	33.9	54.0	65.6	83.2	96.9	110.6	135.8	122.1	190.2	245.9	275.5
Corporations[2]	51.6	76.5	116.5	191.1	238.7	282.2	323.4	354.4	318.7	436.3	448.8
Unallocated	0.0	3.8	10.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Brokered	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest rate options[4]	**0.0**	**327.3**	**537.3**	**561.3**	**577.2**	**634.5**	**1,397.6**	**1,572.8**	**3,704.5**	**4,723.0**	**4,920.0**
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**	**25,453.5**	**29,034.9**

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

[1]Including international institutions.

[2]Including others.

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

[4]Include caps, collars, floors, and swaptions.

Table 2.8. New Interest Rate and Currency Swaps

(In billions of U.S. dollars)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Interest rate swaps											
All counterparties	**387.8**	**568.1**	**833.6**	**1,264.3**	**1,621.8**	**2,822.6**	**4,104.7**	**6,240.9**	**8,698.8**	**13,678.2**	**17,067.1**
Interbank (ISDA member)	125.9	193.1	318.0	484.5	761.7	1,336.4	2,003.9	3,199.5	4,989.8	7,185.8	9,163.0
Other (end-user and brokered)	261.9	375.0	515.5	779.7	860.0	1,486.2	2,100.8	3,041.4	3,709.0	6,492.4	7,904.1
End-user	257.0	371.4	503.4	705.3	844.7	1,436.7	2,000.6	2,962.4	3,709.0	6,492.4	7,904.1
Financial institutions	168.7	238.1	317.9	420.1	492.4	853.9	1,115.7	1,632.5	2,292.9	4,754.4	5,947.3
Governments[1]	21.7	32.9	39.6	74.7	79.0	148.9	198.6	178.8	232.4	261.2	469.0
Corporations[2]	62.6	98.2	139.5	210.6	273.3	434.0	678.0	1,150.9	1,183.7	1,476.8	1,487.9
Unallocated	4.1	2.3	6.5	0.0	0.0	0.0	8.3	0.1	0.0	0.0	-0.1
Brokered	4.9	3.5	12.1	74.4	15.3	49.5	100.2	79.0	0.0	0.0	0.0
Currency swaps											
All counterparties	**172.8**	**248.5**	**356.3**	**425.5**	**656.8**	**603.7**	**590.4**	**758.6**	**910.2**	**1,518.1**	**2,270.8**
Adjusted for reporting of both sides	86.3	124.2	178.2	212.7	328.4	301.9	295.2	379.3	455.1	759.1	1,135.4
Interbank (ISDA member)	35.8	58.7	101.3	122.6	208.0	132.4	110.9	162.3	307.6	475.7	924.8
Other (end-user and brokered)	136.9	189.8	255.0	302.9	448.8	471.3	479.5	596.3	602.6	1,042.5	1,346.0
End-user[3]	67.8	93.9	127.1	150.7	219.1	234.7	239.0	296.7	301.3	521.2	673.0
Financial institutions	31.9	43.5	52.2	51.4	98.6	78.9	77.2	107.6	143.8	231.8	324.9
Governments[1]	13.9	19.3	23.0	23.4	30.7	42.1	52.7	54.3	49.0	69.1	91.6
Corporations[2]	21.5	29.1	46.2	75.9	89.7	113.7	109.0	134.7	108.5	220.4	256.5
Unallocated	0.6	2.0	5.7	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Brokered	1.2	2.1	1.0	1.6	10.7	1.9	1.5	3.0	0.0	0.0	0.0
Total (interest rate and currency swaps for all counterparties)	**474.1**	**692.3**	**1,011.8**	**1,477.0**	**1,950.2**	**3,124.5**	**4,399.9**	**6,620.2**	**9,153.9**	**14,437.3**	**18,202.5**

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

[1]Including international institutions.

[2]Including others.

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

Table 2.9. Annual Turnover in Derivative Financial Instruments Traded on Organized Exchanges Worldwide

(In millions of contracts traded)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Interest rate futures	91.0	145.7	156.4	201.0	219.1	230.9	330.1	427.0	628.6	561.0	612.2	701.6	760.0
Futures on short-term instruments	16.3	29.4	33.7	70.2	76.0	87.3	144.9	180.0	282.3	266.5	283.6	313.9	338.6
Three-month eurodollar	12.4	23.7	25.2	46.8	39.4	41.7	66.9	70.2	113.6	104.2	97.1	107.2	119.3
Three-month euroyen	0.0	0.0	0.0	4.7	15.2	16.2	17.4	26.9	44.2	42.9	38.2	36.4	30.9
Three-month euro-deutsche mark	0.0	0.0	0.0	1.6	3.1	4.8	12.2	21.4	29.5	25.7	36.2	44.3	55.0
Three-month PIBOR futures	0.0	0.0	0.5	2.3	1.9	3.0	6.4	11.9	13.2	15.5	14.1	14.4	5.3
Futures on long-term instruments	74.7	116.4	122.6	130.8	143.1	143.6	185.2	247.1	346.3	294.5	328.6	387.7	421.5
U.S. treasury bond	54.6	69.4	73.8	72.8	78.2	69.9	71.7	80.7	101.5	87.8	86.0	101.4	113.8
Notional French government bond	1.1	11.9	12.4	15.0	16.0	21.1	31.1	36.8	50.2	33.6	35.3	35.9	26.1
Ten-year Japanese government bond	9.4	18.4	18.9	19.1	16.4	12.9	12.1	15.6	14.1	15.2	13.6	12.9	11.9
German government bond	0.0	0.0	0.3	5.3	9.6	12.6	20.6	33.6	57.2	52.1	74.6	101.6	136.2
Interest rate options[1]	22.2	29.3	30.5	39.5	52.0	50.8	64.8	82.9	116.6	225.5	151.0	116.8	129.7
Currency futures	19.9	21.2	22.5	28.2	29.7	30.0	31.3	39.0	69.7	99.6	73.7	73.6	54.5
Currency options[1]	13.0	18.3	18.2	20.7	18.9	22.9	23.4	23.8	21.3	23.2	26.3	21.1	12.1
Stock market index futures	28.4	36.1	29.6	30.1	39.4	54.6	52.0	71.2	109.0	114.8	93.8	115.9	178.0
Stock market index options[1]	140.4	139.1	79.1	101.7	119.1	121.4	133.9	144.1	197.5	187.3	172.3	178.2	195.0
Total	315.0	389.6	336.3	421.2	478.3	510.5	635.6	788.0	1,142.9	1,211.5	1,129.4	1,207.1	1,329.3
North America	288.7	318.3	252.2	287.9	312.3	302.7	341.4	382.3	513.5	455.0	428.3	463.5	530.0
Europe	10.3	35.9	40.8	64.4	83.0	110.5	185.0	263.5	398.0	354.7	482.8	482.8	525.9
Asia-Pacific	14.4	30.0	34.4	63.6	79.1	85.8	82.8	98.4	131.9	126.4	126.9	126.9	170.9
Other	1.6	5.5	8.9	5.3	3.9	11.6	26.3	43.7	99.4	275.4	193.4	134.0	102.5

Source: Bank for International Settlements.

[1]Calls plus puts.

exchange derivatives (options, currency swaps, and others); and interest rate products.[40] It conveys a sense of market size as measured by notional amounts and gross market value of derivatives outstanding, and activity as measured by average daily turnover of notional amounts.

Notional amounts outstanding in derivatives markets are related to market risk exposure. From the end of March 1995 to the end of June 1998, notional amounts outstanding in the OTC markets rose by 52 percent to $72 trillion, compared with $13.2 trillion outstanding in exchange-traded foreign exchange and interest rate derivatives (which grew by 34.2 percent). To put this figure in perspective, in 1998, world GDP was $29.2 trillion;[41] in 1997, stock market capitalization and securitized debt in the European Union, North America, and Japan amounted to about $46.6 trillion (GDP in these countries totaled $21.4 trillion).[42]

Gross market value (a concept that originated at the BIS) is a useful indicator of current credit exposure. The gross market value of a portfolio of derivatives contracts is the sum of the (absolute) market values of the component contracts. For example, a portfolio that has one contract worth $5 and one contract worth -$2 (i.e., a negative market value) has a gross market value of $7. At the reporting date, gross market value in OTC markets amounted to $2.6 trillion or about 9 percent of world GDP. Gross market value was 2.8 percent of notional amounts for interest rate contracts and 4.5 percent of notional amounts for foreign exchange contracts, reflecting the greater leverage in interest rate contracts (see Appendix 1 to Chapter IV).[43]

Activity continued to expand more rapidly in OTC markets than on exchanges. Average daily turnover on OTC derivative markets nearly caught up with turnover on organized exchanges: OTC turnover averaged $1.26 trillion per day in April 1998 and grew by 66 percent between April 1995 and April 1998, whereas exchange-traded turnover averaged $1.37 trillion a day and grew by only 12 percent. Foreign exchange derivatives

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[40]The survey is limited to OTC derivatives, but makes comparisons to data on exchange-traded derivatives that the BIS collects in other surveys.

[41]See Statistical Appendix, Table 1, of International Monetary Fund (1999).

[42]Notional derivatives outstanding in the same countries amounted to approximately $68.1 trillion, about 146 percent of the size of underlying capital markets (assuming that these countries' share in total OTC derivatives turnover is the same as their share in amounts outstanding in OTC and exchange traded markets).

[43]This ratio can be interpreted as the inverse of leverage. Since foreign exchange contracts typically involve the exchange of principal, while interest rate contracts do not, the latter allow higher leverage ratios.

were increasingly (and by April 1998, were almost exclusively) traded in the interbank market: while daily turnover in the OTC segment grew by 38 percent to $990 billion, daily turnover in exchange-traded contracts shrank by 29 percent to $12 billion. By contrast, interest rate products were predominantly traded on exchanges, where they averaged daily turnover of $1.36 trillion compared with $270 billion in OTC markets.[44]

Activity in interest rate derivatives is dominated by swaps (58 percent of turnover), followed by forward rate agreements (28 percent) and options (14 percent). Turnover in foreign exchange derivatives is dominated by foreign exchange swaps (76 percent), followed by outright forwards (14 percent), options (9 percent), and currency swaps (1 percent).[45] The comparatively small forward market is oriented toward the retail trading and hedging needs of nonfinancial customers, who account for 36 percent of turnover.[46] While 92 percent of OTC currency derivatives activity is conducted in U.S. dollars, in the interest rate segment the dollar (27 percent) is followed closely by the deutsche mark (24 percent).

The rapid growth of derivatives markets, the limited transparency of OTC markets compared with organized exchange markets, the role of derivatives markets in facilitating leverage, and the concentration of derivatives activity in a small number of institutions have given rise to extensive discussion of the risks in derivatives markets, particularly the OTC segment.[47] Part of the debate revolves around the issues of liquidity and counterparty risks, which are generally viewed as higher in the OTC market than in organized exchange markets. Accordingly, there have recently been attempts to adapt some of the features of exchange markets to the OTC market. For example, the London Clearing House has recently launched an initiative to clear OTC swaps (a similar arrangement is already in place in Sweden).

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[44]One reason for the higher turnover of foreign exchange contracts is that they tend to have shorter maturities than interest rate contracts.

[45]A foreign exchange swap is typically a short-term deal that combines a spot sale of currency and a forward purchase. A currency swap typically has a longer maturity and involves both a spot sale and forward purchase and the periodic exchange of interest in the two currencies.

[46]The average deal size of spot and forward transactions in the United States is approximately $4 million, whereas the average notional size of foreign exchange swaps is nearly eight times as large. Long-term transactions (one year and longer to maturity) account for less than 4 percent of traditional foreign currency derivatives turnover.

[47]See Steinherr (1998) for a discussion of the policy issues raised by derivatives markets. High chargeoffs to U.S. banks on derivatives exposures in the third quarter of 1998 also gave rise to some concerns about risks in derivatives markets.

Developments in the Major Banking Systems

Profits in major banking systems were affected by the market turbulence in 1998, and credit temporarily tightened in some countries. The performance of top banks was hampered by their direct and indirect exposures to emerging markets and interest rate exposure from large securities portfolios. In the aftermath of the turbulence, the international exposure of the major banking systems contracted, notably due to a sharp decrease in credit to nonbank entities in these markets. Exposures to emerging markets also declined in the second half of 1998 (Table 2.10). The rebound in asset prices in the following months, however, generally translated into a pickup in profits in the first quarter of 1999 (see Figure 2.1). With respect to credit conditions, the tightening of standards and terms evident in the United States in late 1998 eased considerably thereafter, although risk premiums, notably on commercial and industrial loans, continued to rise (as noted earlier, in the United States, bank credit substituted for market credit to some extent during the turbulence). Credit expansion was strong in early 1999 in the euro area, but credit contracted in Japan both for structural (including write-offs of bad debt and an increased focus on credit risk) and cyclical reasons and despite earlier official measures to support lending.

Supervisors have moved to monitor large banks more closely, and efforts to update international prudential requirements have been accelerated. The shift toward closer monitoring of banks' activities and greater disclosure appears to reflect the recognition that commercial banks' increased reliance on trading revenues (including from proprietary trading) and leverage (including through derivatives and securitization of loans and commercial credits) might have heightened systemic risks (Chapter IV). In the United States, the shift also appears to have been motivated by the changing nature of the industry following the numerous mergers among top banks,[48] while at the international level it was reflected, inter alia, in added momentum to the work of the Joint Forum on Financial Conglomerates, which issued a set of papers on the supervision of large financial conglomerates (see Annex IV). On the regulatory front, the Basel Committee presented a draft revision of the 1988 Capital Accord. The document focuses on making prudential credit risk measurements more sensitive to actual risk, and on expanding the current framework to include supervisory review of an institution's capital adequacy and internal assessment process, as well as on enhancing the role of market discipline.

The profitability of the top 10 U.S. banks dropped by one-third in 1998, on the heels of the turbulence in the summer and fall. To varying extents, most of these banks faced losses

[48]Several mergers announced in the early part of 1998 (see International Monetary Fund, 1998a) were completed in subsequent months, and a major U.S. commercial bank was taken over by one of the three largest German banks in 1999. In addition, consolidation among regional banks continued; Wells Fargo and Norwest Corporation merged in November, and Fleet announced in March that it would acquire its cross-town rival BankBoston.

Table 2.10. Claims of Banks in BIS-Reporting Countries on Selected Emerging Markets as of December 1998[1]

(In billions of U.S. dollars)

	All BIS-Reporting Countries	Japan	United Kingdom	United States	Euro Area [2]	France	Germany
Asia	**554.5**	**154.1**	**78.8**	**27.3**	**210.2**	**51.0**	**93.1**
(Percent change from June 1998)	(-13.2)	(-17.5)	(-6.8)	(-7.9)	(-11.4)	(-7.8)	(+ 0.6)
Of which:							
China	58.2	15.1	6.5	1.9	22.7	8.2	6.9
Hong Kong SAR	131.4	38.7	28.1	4.7	46.5	9.7	22.4
Asia-5	187.9	64.7	15.0	14.7	64.6	18.9	25.5
Latin America	**288.5**	**14.5**	**24.0**	**62.0**	**143.1**	**22.0**	**40.9**
(Percent change from June 1998)	(-2.4)	(-1.8)	(+3.8)	(-3.3)	(+27.3)	(-12.3)	(+3.7)
Of which:							
Argentina	61.5	2.0	5.7	11.3	34.6	3.4	9.1
Brazil	73.3	4.2	6.5	12.7	36.7	6.1	11.3
Mexico	65.0	4.7	5.1	18.2	25.9	6.3	6.8
Transition countries	**121.6**	**3.9**	**2.8**	**6.5**	**95.3**	**10.3**	**56.7**
(Percent change from June 1998)	(-8.9)	(-5.5)	(-27.2)	(-47.8)	(+3.1)	(-7.2)	(+8.0)
Of which:							
Russia	58.6	0.9	1.0	2.2	47.3	5.8	30.9
Middle East	**63.1**	**3.9**	**7.6**	**5.7**	**29.1**	**7.2**	**14.6**
(Percent change from June 1998)	(+10.1)	(+106.5)	(+17.1)	(+7.4)	(+13.4)	(+3.0)	(+25.9)
Africa	**56.4**	**1.9**	**3.7**	**3.3**	**39.0**	**18.6**	**10.2**
(Percent change from June 1998)	(-3.2)	(-19.3)	(-4.2)	(-31.8)	(-0.9)	(-0.8)	(+8.0)
All emerging markets	**1,084.0**	**178.3**	**116.8**	**104.8**	**516.8**	**109.2**	**215.5**
(Percent change from June 1998)	(-8.4)	(-15.5)	(-4.1)	(-11.5)	(-3.5)	(-6.9)	(+4.8)

Sources: Bank for International Settlements (BIS); and IMF staff calculations.

[1]On-balance-sheet claims, excluding claims on offshore centers (with the exception of Hong Kong SAR and Singapore, which are included in Asia).

[2]Because data are not reported for Greece and Portugal, data are for Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, and Spain.

on direct holdings of securities and exposures to hedge funds, as well as declines in revenues from securities trading.[49] Merger and internal restructuring charges also had a substantial impact on the quarterly profile of some banks' returns, as well as on their annual results. Nevertheless, the sector generally weathered the market turmoil well and performed strongly in the first quarter of 1999.

The U.S. banking system showed several indications of strength in the first quarter of 1999, but the mature phase of the business cycle suggests an increase in downside risks. The sector continued to benefit from wide, albeit narrowing, interest margins and relatively strong control of labor costs net of merger charges, while Tier 1 capital ratios of large banks generally remained around 8 percent (well above the statutory minimum), and specific provisions were well in excess of recognized problem loans. Asset quality, however, started to show the typical signs that the economy might have reached the top of the cycle: the volume of bad commercial and consumer loans increased for the first time since 1991, and concerns about real estate lending intensified somewhat. Growing competition, together with the prospective passage of regulatory reforms that would open new business fields to banks,[50] may trigger new mergers (including with securities and insurance firms), although the accompanying merger and acquisition charges could become a heavy burden to banks as the economy slows.

Bank performance in Canada was also affected by volatility in trading activities, but return on equity remained above 15 percent for most banks, pointing to the soundness of the sector. Growth prospects could, however, be dampened by Canada's susceptibility to the economic cycle in the Western Hemisphere, and by banks' limited diversification into other markets. Further consolidation in the domestic market appeared unlikely after regulators blocked two large mergers.

Banks in the United Kingdom that operate mainly in the domestic market had another good year; those banks with a large share of business in Asia, however, faced a decline in

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[49]Return on equity (ROE) of the 10 major banks in the United States still averaged above 10 percent in 1998. The resilience among banks was uneven, with those banks more dependent on investment banking activities being more affected. For example, a top institution became the target of a (friendly) takeover after major losses in its emerging market portfolio compounded earlier losses stemming in part from an aggressive business strategy.

[50]Legislation recently passed in the U.S. Congress. The Federal Reserve and the Treasury still maintain different views about whether the nonbanking activities of banks should be conducted within bank holding companies or within operating subsidiaries; under this legislation, each agency could veto the other's actions on new banking powers. Although passage of legislation repealing the Glass-Steagall act is closer now than at any time in the last 15 years, the final legislative outcome is still uncertain, and depends upon further negotiations between both houses of Congress.

profitability (albeit from a high level). Interest margins on domestic operations remained mainly in the 2–3 percent range, and labor costs were well contained. Several factors may put downward pressure on earnings growth in the period ahead. Domestic competition is intensifying, particularly from nonbank financial institutions. Loan losses have already edged up, and the economic slowdown will put further pressure on loan quality (though recent strong profitability will mitigate the effects of a slowdown). Despite recent improvements in risk management, greater reliance on high-margin loans to individuals[51] has raised the cyclical sensitivity of bank income. Prospects for overseas earnings will hinge on the recovery of emerging market economies, notably Hong Kong SAR.

Profitability in most continental European banking systems recently improved as banks have been able to increase noninterest income (though ROE generally remained below 10 percent). Noninterest income was boosted by fees and commissions from a shift of customers into alternative savings products, as well as trading income. Despite some write-offs for emerging market exposures, aggregate 1998 results were favorable in the larger European countries.[52] The aggregate operational income of the four top banks in Germany rose by 14 percent in 1998, following the recovery of asset prices in the last quarter of the year; income from trading accounts increased by 50 percent. Major banks in France enjoyed a second year of improved results (net income for the four largest banks rose by 14 percent), also in large part owing to increased income from trading and a rise in the value of their holdings in nonfinancial corporations in the wake of strong stock-market gains, and despite substantial provisions for emerging market risks. The aggregate return on equity of Italian banks rose from 2.7 percent in 1996–97 to 7.8 percent in 1998. That improvement was underpinned by a 60 percent increase in revenues from fees and other services, and an 18 percent increase in profits from securities trading in 1998.

Low interest margins, large branch networks, and overstaffing continue to burden continental European banks' profitability. While mergers could help reduce capacity and might raise interest margins, strict labor laws and political considerations still limit the rate at which overstaffing can be addressed. Mergers and acquisitions have accelerated: several major banks have attempted to take over domestic rivals, in what some have characterized as a "quest for national champions," and numerous European banks have taken minority interests in institutions in other euro-area countries (Annex I). As cross-border mergers pick up, European banks will benefit from geographic diversification. The top insurance

[51]Consumer loans have grown by 15–20 percent a year since 1997.

[52]Banks were quick to increase provisions in the aftermath of the crises in Asia and Russia, notably in France and Germany (Italian banks had small exposures). Also, trade credit by large French and German commercial banks to Russia was largely secured or guaranteed by the respective governments; the exposure of other German banks, notably *Landesbanken*, varied significantly, and were in some cases considerable in relation to the equity base and earnings capacity.

companies on the European continent (based in Germany, France, and Italy) have continued to play a prominent role in the unification of those financial systems.[53]

European banks continued to strive to raise their capitalization in recognition of the increased risks owing to their larger securities portfolios, as well as the desire to make strategic acquisitions domestically and abroad. For instance, large commercial German banks are still estimated to have sizeable hidden reserves (e.g., 3 percent of assets for one bank), in part because of strength in stock prices in recent years. However, two major banks chose to raise over €6 billion (about 20 percent of existing shareholder liquidity) in outside capital to finance actual or prospective acquisitions abroad. In France, the relatively weak capitalization of major commercial banks remains a handicap, which could be progressively attenuated by further consolidation of net profits and further rationalization of the French banking structure. In Italy, the capitalization of large banks has improved in recent years, notably in connection with foreign investment and privatization. Nonetheless, considering the banking system as whole, the relatively high stock of problem loans (nonperforming and doubtful loans account for 11.9 percent of total loans) appears to remain a source of weakness for some banks as reflected, inter alia, in the significantly negative free capital of some of these banks.[54]

All major banks in Japan posted losses in fiscal year 1998, owing mainly to large loan loss provisions and charge-offs totaling ¥10 trillion (equivalent to about $80 billion).[55] Net interest revenues were broadly unchanged, and fee income was stagnant. Gains from trading and investment, however, rose by 37 percent, reflecting the volatility of exchange rates and bond yields. Operating costs declined by 2 percent. Several aspects of asset quality were subject to reevaluation, reflecting new disclosure rules and greater recognition of problem loans under the aegis of the Financial Revitalization Laws.[56] At the end of the fiscal year, claims on problem borrowers under the disclosure rules established by those laws were estimated at ¥28 trillion (8.8 percent of total loans), against total reserves of ¥16.7 trillion. Major banks' capital was boosted by public capital injections (¥7.5 trillion) and the inclusion of deferred tax assets (¥7.1 trillion), which together accounted for more than half of Tier 1 capital.

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[53]Italy and France also made further progress toward overhauling their savings bank systems, while similar steps continued to lag in Germany.

[54]Free capital—a measure of ability to cushion further losses—is prudential capital less expected losses on recognized problem loans, fixed investment, and shareholdings.

[55]Difficulties in the nonfinancial sector, which have largely persisted, were discussed in International Monetary Fund (1998a), Chapter V.

[56]See Annex II for a discussion of this and other structural and policy issues relating to the Japanese financial system.

Several measures helped stabilize the Japanese banking system, but prospects will remain uncertain until the problems of low core profitability and excess capacity are decisively addressed. The passage of laws providing a framework for dealing with problem banks and the provision of ample liquidity by the Bank of Japan were key ingredients to that stabilization, reflected inter alia in the decline of the Japan premium in interbank markets. Both the establishment of an independent Financial Supervisory Agency and the creation of a high-level Financial Reconstruction Committee (FRC), whose chief holds a cabinet-level position, have resulted in important strides toward the reorganization of the sector.[57] The restructuring plans presented by major banks to the FRC, however, by themselves might be insufficient to restore core profitability, and loan disposal remains too slow. Also, incipient corporate restructuring suggests that banks may face years of low credit demand and asset write-downs in connection with corporate financial reorganizations.[58]

Risks and Vulnerabilities

Looking ahead, there are some risks to and vulnerabilities in the U.S. equity market, the major currency markets, and the major banking systems. Lack of comprehensive information about the degree and extent of leverage in the major financial systems, which could amplify and propagate shocks in these markets, complicates an assessment of the risks. There are also risks associated with the Y2K computer problem.

The remarkably high level of valuations in the U.S. equity market, reached after a nearly unprecedented period of gains, poses a risk in global financial markets.[59] Three factors have supported past gains in the U.S. equity market: a decline in long-term U.S. interest rates through the end of 1998; robust growth in corporate profits over much of the past few years;

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[57]Two major banks were nationalized in 1998. In 1999, the government has begun to intervene in regional banks, taking over some and ordering others to increase capital. It also has established criteria for capital injections into regional banks, including requiring banks to achieve sufficient capital adequacy after the capital injection (with an 8 percent ratio as a desirable target).

[58]As noted in International Monetary Fund (1998a), there are also problems in the insurance sector. Although a framework to deal with these problems has been put in place, including a privately-financed insurance scheme backed by a government guarantee until 2001, these problems have not been fully addressed.

[59]Federal Reserve Chairman Alan Greenspan recently stated that “the breadth of technological advance and its application has engendered a major upward revaluation of business assets, both real and intangible. That revaluation has induced a spectacular rise in equity prices that to many has reached well beyond the justifiable.” (See Greenspan, 1999b).

and strong inflows of funds.[60] The decline in interest rates has reversed, and rates may rise further in the period ahead. Looking ahead, growth in corporate profits is likely to slow eventually as economic activity moderates to a more sustainable pace. Finally, mutual-fund inflows have slowed in 1999 compared with a year earlier, partly reflecting a shift to direct stock ownership. The weakening of these supporting factors implies an increased vulnerability of U.S. equity prices to shocks, including a sharper-than-expected tightening of monetary policy, weaker-than-expected growth in earnings, and a worsening of investor sentiment.

Although a correction in the U.S. market might have domestic origins, it could well have international consequences. According to some estimates, a correction in the range of 15 to 20 percent would have a manageable domestic economic impact, though a sharp slowdown in domestic demand cannot be ruled out.[61] Also, measures taken since the 1987 crash have strengthened the infrastructure of the U.S. equity markets (see Box 2.3). Uncertainties about the extent of leverage in the global financial system complicate a broader assessment of the risks, however.[62] As the turbulence demonstrated, leverage can magnify small initial disturbances and propagate them across markets in an unpredictable fashion, as margin calls can give rise to adjustments across a range of assets in portfolios. If there is substantial leverage in the system, then a correction in the U.S. equity market could give rise to corrections in financial markets outside the United States, which could then feed back to the U.S. markets.[63] It is difficult to gauge how far such an adjustment might go.

The other main potential risk concerns the tensions between near-term and medium-term influences on the major exchange rates, and how rapidly they might be resolved. For example, the cyclical position and monetary policy stance of the United States vis-à-vis the euro area have strengthened the dollar against the euro in 1999; however, the large current

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[60]A competing explanation for the rise in stock prices—a decline in the equity risk premium—is difficult to reconcile with the apparent repricing of risk in the fixed-income market.

[61]See International Monetary Fund (1999), p. 22. Some have also suggested that a stock-market correction could put pressure on U.S. firms that have employed debt-financed equity buybacks to raise return on equity. Also, see Starr-McCluer (1998) for an analysis of the wealth effect in the United States. The macroeconomic effects of a correction (including effects on the value of the dollar) could also give rise to international spillovers.

[62]Some anecdotal evidence suggests that in the early part of 1999, hedge fund activity picked up and lenders relaxed terms of credit to HLIs, including by reducing or waiving initial margins.

[63]In October 1997, turbulence in the Hong Kong SAR equity market appeared to spill over to the U.S. equity market (see Box 4.1 in International Monetary Fund, 1998a).

account deficit in the U.S. and the surplus in the euro area imply that the dollar might weaken against the euro in the medium term. Similarly, a weaker yen might be helpful from a cyclical perspective, but Japan's large current account surplus would be consistent with a stronger yen over the medium term (similar considerations apply to these currencies in effective terms). The degree of risk associated with these tensions depends upon how they are reconciled. If they are reconciled gradually, there is little risk of volatility. If they are reconciled abruptly, or if the process of realignment is accelerated or magnified by underlying technical features of foreign exchange markets (such as leveraged carry trades, convergence plays, and the use of option or option-like strategies), the adjustment could give rise to some volatility in exchange rates.

The possibility of sharp corrections in the U.S. equity market and in the major currencies adds to the risks facing the major banking systems, as such corrections would no doubt adversely affect banks that are increasingly involved in securities markets. In an environment of growing competition, and as banks' more creditworthy customers increasingly access securities markets, banks are reaching for yield by expanding into securities or securities-related business. More and more banks lend to HLIs, underwrite securities, and engage in proprietary trading and other investment banking activities, including in the fast-growing OTC derivative markets, where risks are not always transparent. This has tended to increase their exposure to risks in securities markets, against a background of growing concentration amid merger activity. Each banking system also has specific vulnerabilities. In the United States, there have recently been signs of some deterioration in credit quality. There are also signs that, following a sharp decline in ROE in 1998, banks are attempting to resist a further deterioration in ROE by taking on more risk. According to a recent Federal Reserve survey of senior loan officers, a rise in securities yields relative to the cost of funds and a willingness to employ increased leverage led U.S. banks to increase their securities holdings in the fourth quarter of 1998. In continental Europe, labor market rigidities are preventing banks from fully reaping the benefits of the wave of mergers sparked by EMU. Also, the introduction of a common monetary policy in the euro area may result in overheating in some of the relatively smaller economies. In these economies, special attention is needed to prevent credit growth from leading to a deterioration of credit standards and portfolio quality and, more generally, to excessive risk-taking. In Japan, although much has been done to stabilize the financial system, the challenge of restoring its long-term viability has not yet been fully addressed. In the meantime, the major banks remain weak, and face years of low profitability owing to weak credit demand and continued write-downs of assets. In these circumstances, banks in these countries may be vulnerable to shocks, including shocks to capital markets, a deterioration of credit quality stemming from weaker-than-expected economic activity, and (in view of the still-considerable exposures) renewed turbulence in emerging markets.

Banks and other financial institutions also face risks from the Y2K computer problem (see Box 2.4). These include both technical risks—the risk of operational failures—and the risks of an adverse shift in market behavior. The risks of operational failures within banks may be minimal in view of the considerable pressure from supervisors and the substantial progress that has been reported. However, nonbank counterparties and borrowers are

Box 2.4. Implications of the Y2K Problem for the Major Financial Systems

With the approach of the millennium, concerns that the Y2K problem could affect financial systems in mature markets have heightened.[1] The Y2K problem is a legacy of a computer programming shortcut: to save computer memory, programmers have frequently used two digits instead of four to identify dates (for example, "99" instead of "1999").[2] As a result, on January 1, 2000, many computer programs and embedded microprocessors may misinterpret "00" as "1900" instead of "2000" and generate errors.[3]

Most observers agree that banks in the major countries have made important progress in preparing for Y2K. Supervisors in the major countries have pressed the banks that they supervise to test and repair their computer systems, and in many instances have followed up with audits and on-site inspections; various international groupings of authorities have served as forums for cross-border coordination and information-sharing on Y2K issues relating to financial sectors. There have also been active efforts to ensure that important segments of the financial infrastructure, such as the major payments systems, are prepared for the date change, and that the various systems will communicate properly with one another in the year 2000. On June 12 and 13, 1999, a global test involving 34 payments systems that handle the bulk of cross-border cash transactions and banks and financial institutions in 19 countries simulated the first two business days of 2000; the test reportedly went smoothly.

Progress and transparency about preparations have been uneven in the emerging markets and in the nonfinancial sector, and problems in those sectors could impact mature financial markets. Recent surveys have found that even some of the major nonfinancial corporations in the industrial countries have lagged in testing and repairing their systems. Preparations have also reportedly lagged in some of the emerging market banking systems (though some emerging market systems have kept pace with the mature markets). More generally, the relatively limited information about progress in Y2K preparations outside the mature market financial systems, and the heavy reliance of such information on self-assessments, raise some concerns in and of themselves.

There are also risks that market participants could react adversely to perceived Y2K problems. Already, in June 1999, there are suggestions of market nervousness about the run-up to the year 2000. In the futures markets, December 1999 funds in U.S. dollars and other currencies now command a larger-than-usual premium over September 1999 and March 2000 funds. Japanese banks have begun to borrow one-month money-market funds deliverable at mid-December 1999 at a premium of about 30 basis points over current unsecured call money rates, including from Japanese life insurers. There were also mounting concerns about securities markets, including concerns that securities investors might shun credit risk (including below-investment-grade bonds and emerging market securities) during the second half of 1999.[4]

In view of these risks and the limited remaining time to correct problems in computer systems, market participants and authorities have recently devoted increasing efforts to contingency planning. National

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[1]See also International Monetary Fund (1999), Box 1.2.

[2]Computer software that appears to use non-Gregorian calendar dates may be susceptible as well, since some software internally converts such dates to Gregorian dates.

[3]Failures may also occur around other critical dates, including the first day of fiscal year 2000 and on September 9, 1999 (since "9999" is sometimes used to indicate errors in computer programs), and on dates well after January 1, 2000 (see Marcoccio, 1999).

[4]"Corporate Bond Activity May Slow Soon as Investors Hem and Haw on Y2K Risks," 1999.

authorities in the major countries have urged financial institutions to formulate and implement business continuity and contingency plans, and national authorities and international groupings have noted the need for authorities to make contingency plans as well. The Joint Year 2000 Council—composed of senior representatives of the Basel Committee on Banking Supervision, the Committee on Payment and Settlement Systems, the International Association of Insurance Supervisors, and the International Organization of Securities Commissions—has emphasized the importance of contingency plans to manage possible liquidity pressures.[5] Recently, a number of central banks have announced contingency plans to ensure adequate supplies of currency and bank liquidity around the turn of the century. Also, in April 1999, the Global 2000 Co-ordinating Group (private market participants representing 432 institutions in 65 countries) launched a global contingency planning effort, with support from central banks and regulatory authorities.[6]

[5]Joint Year 2000 Council (1999).

[6]Global 2000 Co-ordinating Group (1999).

probably less prepared, particularly in countries where authorities have not actively encouraged the private sector to prepare. Banks could face substantial credit losses if a major borrower or counterparty became bankrupt, and could face a liquidity squeeze if operational problems led to delays in payments.

Liquidity squeezes could also arise from an adverse change in market behavior in reaction to Y2K risks, even in those markets where adequate technical preparations have been implemented. In reaction to a perceived increase in risks (rational or not), households may withdraw cash, or shift funds to banks that are viewed as safest; banks could withdraw riskier credits and seek to hold only the safest and most liquid assets through the end of 1999 (with the effect that, e.g., smaller financial institutions and emerging market borrowers might have difficulty obtaining funding through the year-end); and securities markets might experience a "flight to liquidity" similar to the episode during the turbulence.[64] Central banks in the major countries are well aware of these risks and of the need to be watchful in the run-up to the year-end for signs of tensions in their markets and institutions; some have also announced explicit contingency plans to manage liquidity risks related to Y2K.[65]

[64]As early as March 1998, December 1999 eurodollars commanded a significant premium compared with October 1999 or March 2000 eurodollars. A similar rise in turn-of-the-year premia was also evident in the other major currencies.

[65]For example, in May 1999 the Federal Reserve proposed the creation of a special facility (the Century Date Change Special Liquidity Facility) that would lend to depository institutions on special terms around the turn of the year.

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