Recent developments in financial markets

By David Collins of the Bank's Markets and Trading Systems Division.

This article discusses major trends in the financial markets during the past 18 months, focusing in particular on the impact of the problems in East Asia, EMU-related issues and the growth of electronic trading.

The major global event in financial markets was the emergence last summer of difficulties in the Asian tiger economies, which have had a widespread impact on financial markets. The associated downturn in major equity markets outside the region was quickly reversed, and concerns are again being expressed (as they were before the Asian crisis) about the sustainability of current equity index levels. Financial markets in Europe—particularly the bond markets—have been heavily influenced during the past year by the prospects for Economic and Monetary Union at the start of 1999. Government bond yields of likely member countries fell towards those of Germany, though 'convergence trading' has now largely ceased.

Electronic trading continues to make inroads into more traditional methods of financial market activity, especially exchange-traded futures—where the Deutsche Terminbörse (DTB), in particular, has made substantial gains. The rate of growth of on-exchange business continues to lag behind that of over-the-counter (OTC) derivatives.

East Asia

Problems for the 'tigers' . . .

The economic and financial difficulties in Asia have been a major influence on world financial markets since mid 1997.(1) The problems initially centred on the ASEAN-4: Indonesia, Malaysia, the Philippines and Thailand. These countries had enjoyed strong economic growth with generally modest inflation for several years, and had attracted large foreign capital inflows—including a large element of foreign currency borrowing by residents from both domestic and foreign banks. These borrowings were mainly short-term and unhedged. They supported ever-higher levels of investment, often in real estate or other projects giving rise to substantial maturity mismatches that exposed the borrowers to liquidity risk.

It is difficult to identify a single trigger for the crisis. Exports from the ASEAN-4 had fallen in 1996, and lower world prices had reduced profits in a number of important manufacturing sectors for the region. At the same time, the real effective exchange rates of the ASEAN-4 were appreciating steadily, both because inflation within Asia was higher than in many of their trading partners' economies and because their currencies were pegged to the US dollar, which was also appreciating. So the ASEAN-4 were losing international competitiveness, especially against Japan, a key export market; but mounting domestic pressure for lower interest rates was resisted, to maintain the exchange rate pegs to the US dollar.

As these tensions became more evident, there were an increasing number of attacks on Asian currencies in the foreign exchange markets. The Thai authorities, having failed to stem speculative onslaughts by raising interest rates and intervening heavily on the foreign exchange markets, finally broke the peg to the US dollar on 2 July; the baht depreciated by 20% in its first month of free floating. Currency unrest spread quickly to Malaysia, Indonesia and the Philippines. All these countries abandoned their ties to the US dollar within the following six weeks.

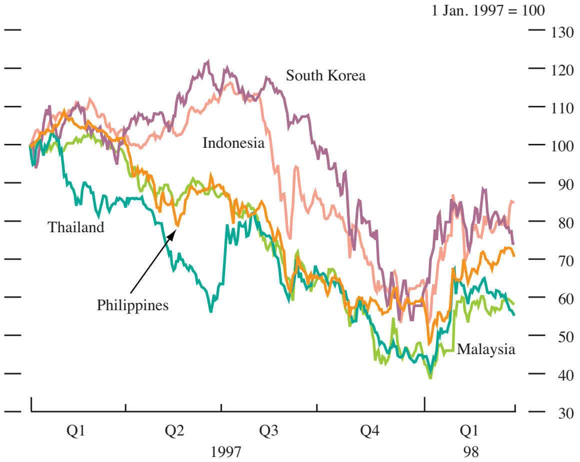
Attention then turned to the underlying domestic economic situation in these countries, and it became clear that their financial infrastructures were under severe strain. A combination of lax regulation, imprudent lending and a degree of political interference had left them poorly prepared for such setbacks, and unable easily to repair the damage unaided. Recognising this, Thailand and Indonesia turned to the IMF for assistance, and two rescue packages were put in place: US$17 billion for Thailand on 11 August and US$23 billion for Indonesia on 31 October.

Until August, South Korea had been relatively unaffected by this currency speculation—partly because its currency was not pegged to the US dollar, and so had depreciated by 10% in 1996. But as foreign investors began to question the underlying economic strength of the ASEAN-4, they also became concerned about South Korea, where similar weaknesses were apparent in the banking system and corporate structure. The Korean won therefore came under attack, and depreciated by 45% during 1997 Q4. With overseas confidence in the Korean banking system much reduced and its foreign exchange reserves running low, South Korea also needed assistance, and an IMF package of US$57 billion was announced on 3 December.

(1) See the February 1998 *Quarterly Bulletin* and *Inflation Report* for greater detail, and the note on Asian developments on pages 133–35 of this issue.

Equity markets in the region reflected the declining investor confidence in the second half of 1997 (see Chart 1): at the height of the problems in the autumn, some had fallen by more than 50% since the start of the year. Equity prices have since recovered some ground as sentiment has slowly improved, but they remain well below their previous levels.

Chart 1
Asian equity markets



Source: Individual exchanges, in local currencies.

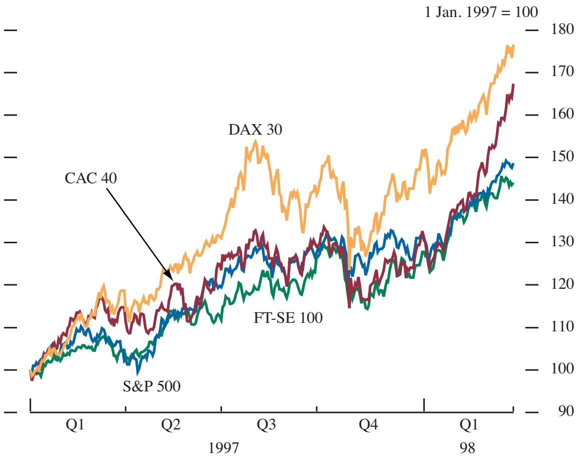
In the bond markets, spreads on emerging market paper narrowed throughout the first half of 1997 as investors, faced with falling yields in G7 markets, sought higher returns; a lack of differentiation in credit risk perceptions also became apparent, as spreads between different issuers narrowed. In October, however, the concerns about the ability of Asian sovereigns, banks and corporate borrowers to service their foreign currency debts prompted sharp increases in the extent and volatility of bond spreads. Bond prices fell rapidly and secondary-market trading effectively dried up, with investors and proprietary traders reluctant to crystallise large losses or to take on any further exposure to Asia. Issuance was also badly affected.

. . . were echoed around the world . . .

The turmoil in Asia quickly spread to other emerging markets. The Brazilian authorities intervened heavily in the foreign exchange market and doubled interest rates to support their currency. Argentina, Russia, Mexico and many other developing countries also faced pressure in the bond and foreign exchange markets. Although the effects elsewhere were not as severe as in Asia and recovery was generally swifter, spreads over benchmark bonds widened for all emerging market countries, and many issuance programmes were suspended.

Equity markets bore the brunt of the impact in developed countries, with a series of sharp falls towards the end of October (see Chart 2). These started with a sharp drop in the Hang Seng index, as the Hong Kong dollar came under pressure on the foreign exchanges, and quickly spread to other markets, triggering an automatic trading suspension on

Chart 2
World equity markets



Source: Individual exchanges, in local currencies.

the NYSE on 27 October. But the falls were short-lived, and most of these markets recovered their lost ground by the year-end. In contrast, major bond markets—especially the US Treasury market—were beneficiaries of the problems in Asia, as investors sought a safe home for their funds.

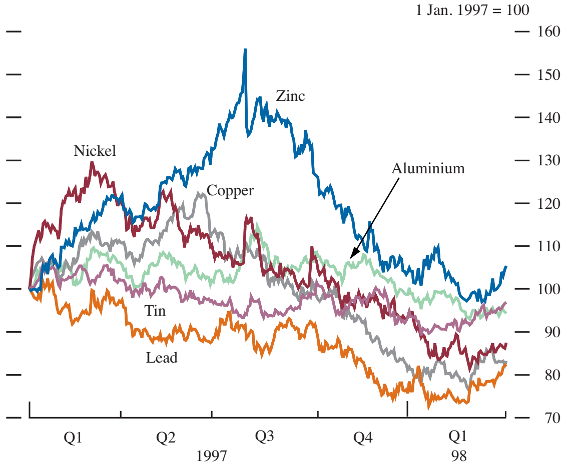
. . . but have now been stabilised

Despite the continuing debate about the appropriateness of the official response to these problems and the lessons to be learnt from them, it is clear that the various IMF packages and associated reforms have helped to bring a degree of stability to the region. As a result, the confidence of foreign investors has begun to return, albeit selectively. The equity markets in the ASEAN-4 and South Korea all recovered substantially in the early months of 1998. Some liquidity has returned to the bond markets, but the investor base remains wary of the countries most affected. Although two-way trading has increased in some emerging market issues, little new paper came to the market in the first quarter of 1998, and none at all from the ASEAN-4 or South Korea. Funding for banks and companies in these countries will therefore remain difficult and much more expensive than a year ago. But even in the worst-affected Asian countries, there are now signs that foreign investors' confidence is returning: South Korea came back to the bond market on 2 April (with a US$3 billion, eight-year issue priced at a spread of around 300 basis points) and other issues have followed.

The long-term effects of these events in East Asia are still far from clear. There was an impact on commodity prices, especially metals (see Chart 3): most prices on the London Metal Exchange fell by around 10%–20% during the second half of 1997, but have since recovered some of their lost ground. Imports by the Asian countries have fallen sharply, and the currency weakness has given their exports a small boost. The IMF has revised down its projection of world growth, with large reductions in its growth forecasts for Asia and especially the ASEAN-4.[1]

(1) See page 135 of 'The international environment' article for further details.

Chart 3
Metal prices



Source: London Metal Exchange.

Bond markets

Low inflation . . .

The objectives and credibility of monetary policy in most industrialised countries have led to a growing acceptance by the financial markets that these economies are entering a phase of low inflation and sustainable growth—the so-called 'Goldilocks' effect in the United States. Although events in Asia created a degree of turbulence in global financial markets, they have not dented the markets' view that the developed economies are, by and large, enjoying greater stability than for many years. More importantly, they expect this to continue. Indeed, the impact of the Asian problems on world activity and on commodity prices has helped to moderate any global inflationary pressure. On the other hand, the financial markets have judged that monetary policy may ease somewhat in response: short-run interest rate expectations in the United States and Germany fell during 1997 Q4.

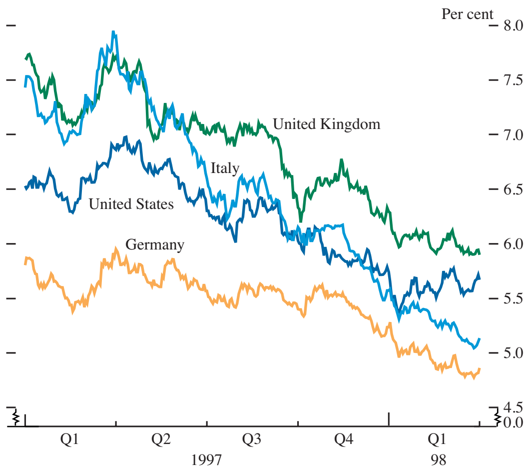
Low yields on government paper have been a catalyst for some investors to look elsewhere for higher yields, and have helped to create a ready market for Brady bond conversions and issues in the embryonic European high-yield market. Equity markets around the world have also been very strong throughout the period (as discussed further below). This may partly reflect the historically low yields on bonds, which may have encouraged some investors to switch away from debt in the search for higher returns.

This view that low inflation and greater stability are likely to persist is demonstrated by the US market, where yields on ten-year Treasury bonds fell from 6.5% at the start of the year to 5.7% by the end of 1997, and reached a low of 5.374% on 12 January 1998. Demand for US paper, especially government paper, increased following the Asian problems in October and contributed to the downward pressure on rates, confirming the 'safe-haven' status of the US dollar (gold, by contrast, did not find similar favour).

. . . and EMU-related convergence . . .

Long bond yields have also been falling in Europe—in some cases, even faster than in the United States. Here, a pervasive factor has been the convergence of interest rates of countries thought likely to be in the first wave of members of EMU (see Chart 4). German ten-year rates, closely tracked by French and Belgian rates, moved in a narrow range during 1997, but fell by 57 basis points overall. Yields on government bonds issued by other countries expected to join EMU have, however, moved sharply towards the benchmark Bund yield. For example, the spread on Italian ten-year bonds over the German equivalent narrowed from 170 to 30 basis points, as market confidence that Italy would join the first wave of EMU increased. The yield on UK ten-year gilts has also fallen, by around 1 percentage point, even though the government has ruled out participation in EMU with the first group of countries. The spread of gilts over German rates was nevertheless still around 100 basis points at the end of March.

Chart 4
Ten-year government bond yields



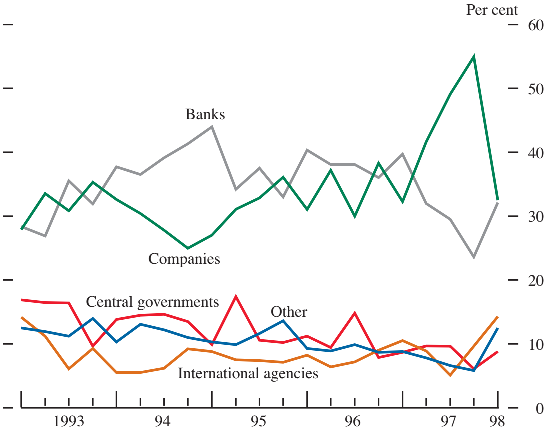
Source: Datastream.

. . . have encouraged issuance

The sustained period of low interest rates has encouraged active eurobond issuance, predominantly in US dollars. Gross issuance in 1996 was 50% up on the previous year, and in 1997 was a further 13% higher, despite a fall-off in the final quarter as a result of the Asian crisis. Much of the growth during 1997 came from the corporate sector: its share of international bond issuance rose from around one third in 1996 to more than half of all issues in the final quarter of 1997 (see Chart 5). With companies tapping the markets directly, there was less need for bank intermediation, and bond issuance by banks almost halved during the same period.

During the first quarter of 1998, issuance rose yet again to almost US$250 billion (see Table A), more than 40% higher than in 1997 Q1, but the pattern of 1997 was reversed, as the share of issuance by companies fell and that by banks rose. Nevertheless, the trend towards direct borrowing is expected to continue during the coming year, especially within Europe. Issuance by international agencies was also sharply higher in 1998 Q1.

Chart 5
Gross international bond issuance by industry



Source: IFR Omnibase.

Table A
International bond issues by sector

$ billions; by announcement date

	1997					1998
	Q1	Q2	Q3	Q4	Year	Q1
Straights	172.8	171.0	149.9	97.2	590.9	262.7
Equity-related	11.7	20.5	18.3	14.8	65.3	14.4
of which:						
Warrants	*1.0*	*1.5*	*1.2*	*0.3*	*4.0*	*0.0*
Convertibles	*10.7*	*19.0*	*17.1*	*14.5*	*61.3*	*14.4*
Floating-rate notes	52.4	53.5	69.9	51.0	226.8	60.9
Total	**237.0**	**245.0**	**238.1**	**162.9**	**883.0**	**338.1**

Source: IFR Omnibase.

1997 also marked the emergence of a recognisable European high-yield bond market, with a number of sub investment grade issues from Germany, France and the United Kingdom. The calendar for 1998 suggests that the high-yield sector within Europe could grow quite rapidly. Though it remains a specialist market, the introduction of the euro at the start of 1999 should create better opportunities and a wider investment base, by removing currency risk from investors in EMU member countries and consolidating it for non-euro investors. In addition, falling yields on government bonds and highly rated corporate debt should stimulate investor appetite for the higher *ex ante* returns offered by this market and further assist its development.(1)

Latin American government issuers responded to investors' preference for higher yields by buying back Brady bonds and issuing global bonds in their place. Brady bonds are backed by US Treasuries, so investors are only exposed to the issuer for the interest payments. By replacing these with global bond issues, investors were given the opportunity to increase their return, by accepting exposure to the government of the issuing country on the principal as well as the coupon. Most of these exchanges took place during last summer: Brazil made a US$3 billion issue in June, and was followed by Venezuela in September with a US$4 billion global bond. Both issues were highly successful, illustrating the growing popularity of 'jumbo' issues. Investors began to show a marked preference for such highly liquid issues during the second half of 1997, and this preference has strengthened this year: there were six issues of more than US$3 billion in the first quarter of 1998, compared with only four in the whole of 1997. The Brady retirement programmes were put on hold in the fourth quarter, following the turbulence in Asian markets.

The impact of EMU was also evident in the currency choice for new issues during 1998 Q1 (see Table B): more than 16% of issuance was denominated in Ecu or Deutsche Marks (the two favoured proxies for the euro), compared with less than 10% during 1997. Yen issuance in the first quarter was sharply lower at 2.4%, compared with an average of just below 8% in 1997.

Table B
Currency composition of international bond issues

Per cent

	1997					1998
Currency denomination	Q1	Q2	Q3	Q4	Year	Q1
US dollar	45.2	57.6	55.0	52.5	52.6	48.8
Sterling	11.4	6.0	6.1	9.7	8.1	9.3
Deutsche Mark	8.3	6.5	7.5	10.7	8.0	10.2
Yen	10.2	6.9	8.5	5.3	7.9	2.4
French franc	4.5	4.4	6.3	5.9	5.2	3.9
Italian lira	4.8	3.8	4.2	5.3	4.5	4.7
Swiss franc	2.9	2.5	2.0	2.9	2.5	2.4
Ecu	2.2	0.3	1.5	0.3	1.1	6.4
Other	10.2	12.2	8.9	7.4	10.1	11.8
Total (US $ billions)	**237.0**	**245.0**	**238.1**	**162.9**	**883.0**	**338.1**

Source: IFR Omnibase.

Equity markets

Record levels for the main indices . . .

Most major equity markets posted substantial gains in 1997, with the exception of Japan, where the Nikkei 225 fell by 21% during the year. The other major indices all rose during 1997, by between 25%–39% (see Chart 2). This period included the setbacks as a result of the problems in Asia, which caused sharp falls on most world stock markets at the end of October. The FT-SE 100 in the United Kingdom fell by 8% in the last two weeks of October, but had recovered all of this fall by the year-end—a pattern reflected in other major equity markets. The implied volatility of the FT-SE 100 contract on LIFFE rose sharply, from below 20% to a peak of more than 40% at end October.

This year, equity markets have continued the strong upward trend of late 1997, and many have already exceeded most analysts' full-year forecasts. In the United Kingdom, for example, the FT-SE 100 rose by 15.5% in the first quarter. Although implied volatility has also fallen, it has stabilised

(1) See pages 62–68 of the autumn 1997 edition of the *Financial Stability Review*. Copies can be obtained from the Bank of England (tel 0171–601 3823/4439).

at a significantly higher level than in 1997 Q1 (see Chart 6).

Chart 6
Implied volatility of the FT-SE 100 future

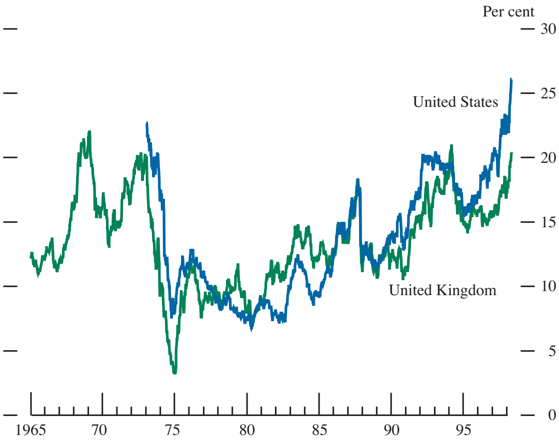
Source: LIFFE.

. . . have raised concerns about market valuation . . .

The strength of major equity markets has inevitably raised concerns about the sustainability of the levels they have achieved. Some unease was already apparent in the middle of last year, as most conventional valuation methods showed that the markets were approaching record levels—previously, the signal for a correction. The Asian crisis prompted some downward adjustment, but this was short-lived and the markets soon recovered their upward momentum.

On most conventional valuation methods, the UK and US markets now look expensive in relation to past experience. Charts 7 and 8, for example, show the long-term trends in the P/E ratio and dividend yield for the UK and US markets. The UK total market P/E ratio stood at 20.3 at end March 1998—its highest level since February 1994. Chart 7 also illustrates the difference between the two most recent major market corrections: in 1987, the market fell sharply

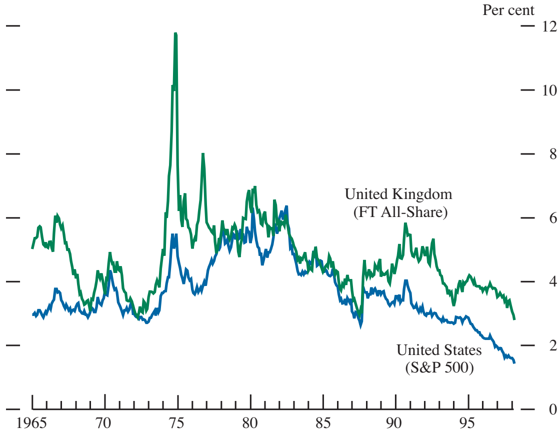
Chart 7
UK and US total market price/earnings ratios



Source: Datastream.

but then resumed a steady upward trend; in the early 1970s, by contrast, P/E ratios declined steadily for three years, from around 20 at the start of 1972 to below 5 by the end of 1974.

Chart 8
Dividend yields in the United Kingdom and United States



Source: Datastream.

UK dividend yields (see Chart 8) have fallen to a record low of 2.8%. The last time they approached these levels was in July 1987, when a figure of 2.95% was recorded. However, dividend yields on their own are not conclusive evidence of an overvalued market—for example, share buybacks may affect the level of yields in the short term, by reducing the dividend declared or by increasing the share price. Share buybacks have been a feature of the UK markets in recent years, but have been more frequent since 1994.

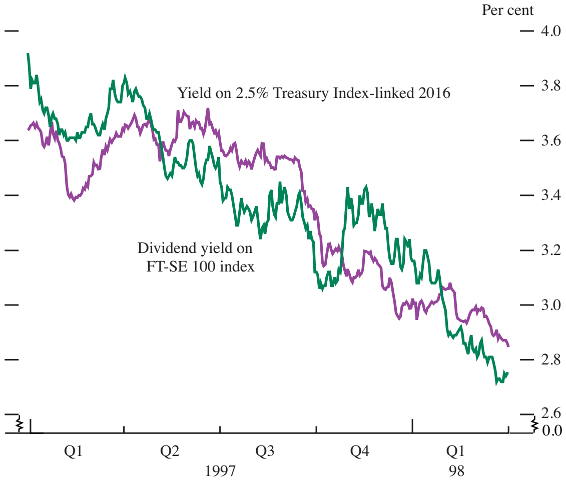
The position in the United States is more extreme than in the United Kingdom on both the above measures: the US P/E ratio for the S&P 500 currently stands at just above 30, against a long-run average for the US market of 13.7, and is now higher than before the onset of recession in 1972. More dramatically, the dividend yield on US equities was 1.31% at end March—its lowest level for 60 years.

Lower dividend yields may partly reflect a greater willingness by investors to accept a lower risk premium for holding equities, consistent with views on stability and on the likely persistence of low inflation noted earlier. But the yield gap between equities and index-linked gilts (see Chart 9) shows that the return on holding UK equities is now lower than on government bonds, which is surprising.

. . . and prompted comparisons with 1987

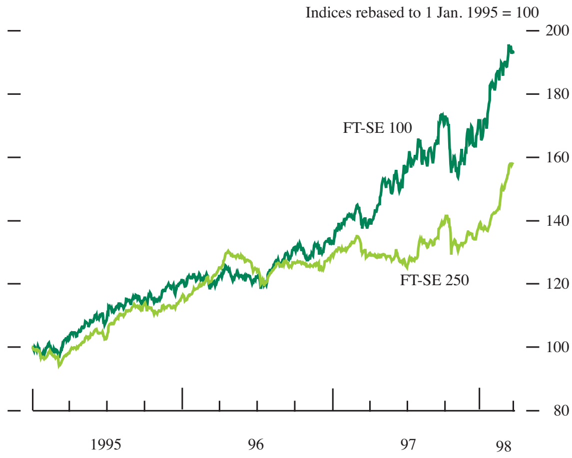
The continued rise of the markets through the third quarter of last year prompted comparisons with the stock market crash in October 1987, but closer examination reveals considerable differences between the two periods. Chart 10 shows that the FT-SE 100 index almost doubled between January 1985 and its peak in July 1987, with some erratic price movements between the two dates; during 1995–97, however, the index has risen more or less

Chart 9
UK yield gap



Sources: Datastream and the Bank of England.

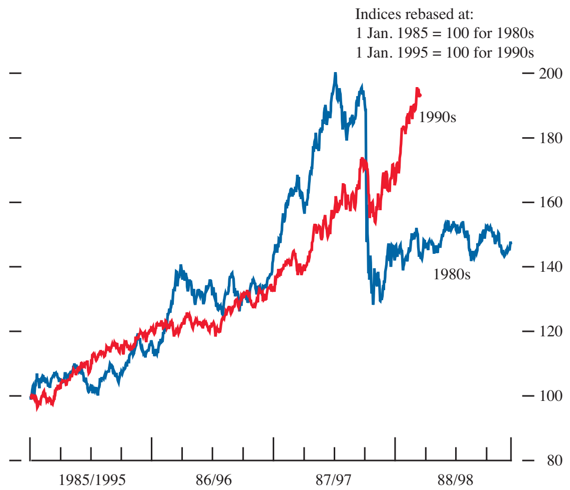
Chart 11
UK equity markets in the 1990s



Source: London Stock Exchange.

consistently. The chart clearly shows that the surge in the early part of 1987 was far more rapid than any growth during 1997, though it does have some parallels with the sharp rise in the FT-SE 100 index in 1998 Q1.

Chart 10
FT-SE 100 index 1985–88 vs 1995–March 1998



Source: London Stock Exchange.

It is also notable that the rise in the UK equity market during 1997 was much more narrowly based than in 1987. From 1985–88, the FT-SE 250 index closely tracked the FT-SE 100 index. In contrast, during the more recent period (see Chart 11) the FT-SE 250 moved roughly in line with the FT-SE 100 until the start of 1997, when the two diverged as the FT-SE 100 moved sharply higher—the FT-SE 100 index climbed by 25% in 1997, while the FT-SE 250 index rose by only 6%. The FT-SE 250 has, however, grown more in line with the narrower index during 1998 Q1.

A closer examination of the FT-SE 100 index shows that, even within this group of leading shares, the recent strong performance of the market has been narrowly based. Two sectors dominated the strong performance: retail banks (+43%) and pharmaceuticals (+42%). The strong performance of the former reflects a combination of demand for demutualisation stocks, strong profits and merger speculation. (Demutualisations increased the weight of retail banks in the FT-SE 100 from 14% at the start of 1997 to 20% at end March 1998.) The strong performance of banking shares has not been confined to the United Kingdom—there were similar rises in bank shares in France, Germany, Italy and the United States during 1997—and is generally attributed to the expectation of further consolidation within the sector. The pharmaceutical sector's performance is likewise part of a global trend, also against a background of expected rationalisation within the industry.

Issuance has been subdued

In contrast with the buoyant performance of the secondary market, equity issuance in the United States and the United Kingdom during 1997 was lower than in the previous year, by 13% and 30% respectively. To some extent, this is the counterpart to the higher levels of international borrowing by the corporate sector. Other factors relate to the weak performance of the mid-cap markets in both countries relative to the main index: with a clear investor preference for blue-chip stocks in the secondary markets, medium-sized companies may have been less keen to approach the market.

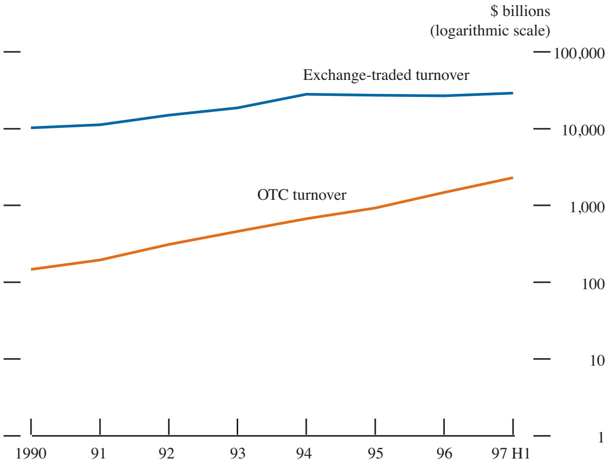
On the other hand, new issues in continental Europe were up by 14% on 1996 figures, at US$123 billion. The major reason was a number of large privatisations, especially in the telecommunication sector, as governments sought to reduce their deficits to meet the Maastricht criteria for membership of EMU.

Derivative markets

OTC business buoyant . . .

The over-the-counter derivatives markets grew strongly in the period to end September 1997 (see Chart 12), the latest date for which data are currently available. Anecdotal

Chart 12
OTC vs exchange-traded average monthly turnover



Source: BIS.

evidence suggests that activity was quieter in Q4, partly because of the usual seasonal downturn, but also in response to the situation in Asia and the consequent lower levels of bond issuance activity. Activity appears to have picked up again in the first quarter of this year.

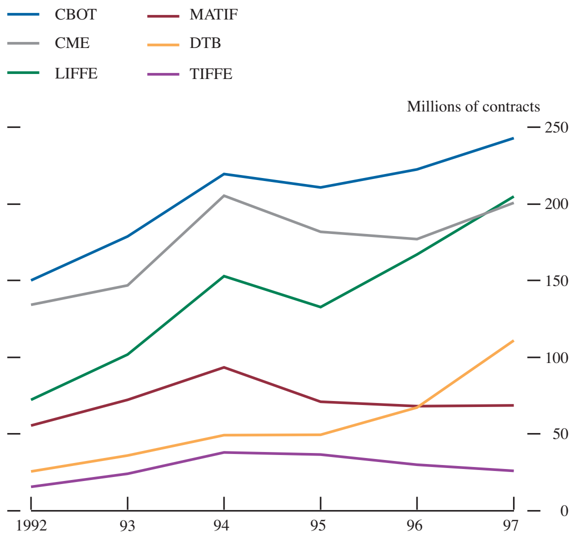
The continuing rapid growth in the use of OTC derivatives reflects the flexibility that they offer, together with greater use (and acceptability) of customised products and improvements in risk management. Increased use of collateral has also contributed, by freeing up credit lines and allowing lower-rated companies to tap the market to an extent that would not have been possible without this protection for their counterparties. EMU-related trading, which gave rise to profit opportunities linked to convergence in (and different views about) the underlying cash markets in the approach to monetary union, is also likely to have been important. This has probably been less significant in recent quarters than in the early part of last year, since much of the expected convergence has now taken place.

A comparison between the International Swaps and Derivatives Association survey of outstandings at end June 1997 and data for US and UK banks suggests that continental European firms (mainly large German, French and Swiss houses) have significantly increased their share of the market. This is consistent with the view that much of the increase in activity can be attributed to trading in advance of EMU. Confirmation may come from the BIS triennial survey taking place in April and at end June, the results of which should be available later in the year.

. . . but only modest gains on exchanges

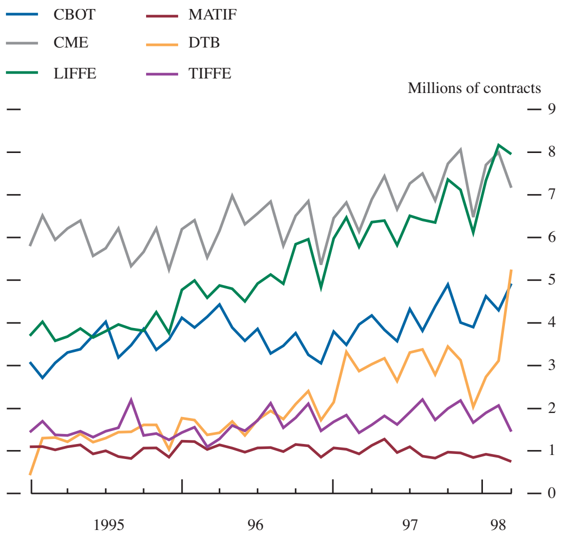
Exchange-traded turnover grew only modestly in 1997, though open interest grew more rapidly. There were, however, significant differences in the growth of turnover and open interest between different derivative exchanges (see Charts 13 and 14). LIFFE and the DTB both experienced rapid growth of volumes and open interest:

Chart 13
Annual turnover on major derivatives exchanges



Source: FIA and individual exchanges.

Chart 14
Open interest on major derivatives exchanges



Source: Individual exchanges.

like the OTC market, they doubtless benefited from the uncertainties—and therefore the trading opportunities—associated with EMU. A related factor was that the convergence of European bond yields has meant that some holders of European bonds are now choosing to hedge their positions with more liquid Bund futures, rather than contracts on their home exchanges.

Turnover on other major exchanges, such as TIFFE and MATIF, has been declining. The major US exchanges, the CBOT and the CME, have experienced steady, if unspectacular, growth. The CME's halving of the tick size for the eurodollar contract in March 1997 seems to have achieved its aim of boosting turnover by attracting some business back from OTC products. (LIFFE and DTB also made similar changes to their euro-Deutsche Mark interest rate contracts in January 1998, although they were not suffering the same loss of business to the OTC markets as the US exchanges.)

Structural developments

There have been a number of significant developments in the trading infrastructure during the past year, many related to the increasing scope offered by electronic technology to enhance, and reduce the costs of, the trading process.

Electronic trading is now firmly established . . .

The availability of increasingly powerful and sophisticated technology influenced the financial markets in a number of ways during 1997. In particular, use of electronic trading systems increased to an extent that has begun to affect market structures. Such systems allow access to markets without the need for a physical presence, facilitating trading from remote sites and removing the capacity constraints that have beset floor-traded markets.

SETS—the London Stock Exchange's electronic trading system for FT-SE 100 stocks—went live on 20 October 1997. Investors can now choose whether to use SETS (order-driven) or continue trading bilaterally over the telephone (quote-driven). SETS currently accounts for around 30% of FT-SE 100 trading by value, a level reached in the first few days of operation, but so far the level of use by institutional investors has been below expectations. Because trading is concentrated in the mid morning and early afternoon, there have at times been low volumes in the orderbook; this has been reflected in periods of poor liquidity, resulting in occasional unrepresentative prices and wide spreads, especially at the start of the trading day. The LSE is hoping that, as system familiarity increases, liquidity and volumes will pick up, and is consulting the market about how these practical problems—which also affect other orderbook systems—can be overcome.

On the derivatives exchanges, the increased viability of screen trading is becoming clear. The most prominent example is that of LIFFE and DTB, which list identical Bund futures contracts, floor and screen-traded respectively: LIFFE's market share of Bund futures turnover has fallen from 66% in January 1997 to 31% in March 1998, demonstrating both the extent to which the DTB has been able to access a wider market by allowing remote access and the clear market preference for (cheaper) electronic trading. LIFFE has itself now decided to develop a new system to allow electronic trading of LIFFE contracts alongside floor trading by the end of 1999. MATIF, the Paris futures exchange, moved to parallel screen and floor trading of all its financial futures in April 1998. Outside Europe, the Sydney Futures Exchange announced its intention to become the first exchange to move from being entirely floor-traded to entirely screen-traded in the autumn.

Bond markets too are developing screen-based trading systems: ISMA, the body representing the main eurobond trading houses, announced plans in January to introduce Coredeal, the first independent 24-hour electronic trading system for international fixed-income securities. This is expected to go live at the start of 1999, and will allow anonymous trading between counterparties; advertising and matching of orders; and execution and confirmation of trades, based on its existing TRAX system. Users will also have the option to use the system to negotiate prices and amend the advertised trade details.

. . . and is prompting exchange mergers and alliances

The growth of electronic trading systems and the competition that has flowed from it have been the catalyst for new forms of co-operation and competition between exchanges, allowing both remote trading and the trading of two (or more) exchanges' products simultaneously from each exchange.(1) A shared electronic trading platform involving Scandinavian derivative exchanges (Sweden's OM Stockholm/OMLX and Norway's Oslo Stock Exchange) started operating in February 1997. The German and Swiss derivative exchanges (DTB and SOFFEX) are also planning to establish a common market for their products on a single trading and clearing platform—EUREX—by October 1998; other exchanges are also expected to form links with EUREX once it is established. In the United States, CBOT and CME have signed a letter of intent to combine their clearing entities.

In Europe, there were a number of mergers between stock and derivative exchanges during 1997 and the early part of 1998 (in Amsterdam, Denmark, France, Finland and Sweden). These mergers—like similar mergers between the stock and derivative exchanges in Switzerland in 1993 and in Germany in 1994—reflect the increasingly competitive nature of financial markets in Europe.

EASDAQ, a pan-European stock market, traded its first stock at the end of November 1996; it now trades around 25 securities, mainly of high-growth companies. A European network of stock exchanges (Euro.NM) has also been developed. It too seeks listings from innovative companies with high growth potential, and is developing common listing and operating rules for its member exchanges to foster closer ties, in particular through joint marketing. Following the launch in 1996 of Nouveau Marche (Paris) and Euro.NM (Belgium), the network continued to expand in 1997, with the Nieuwe Market (Amsterdam) and the Neuer Markt (Frankfurt).

Settlement systems have been enhanced . . .

At the same time, there have been enhancements to settlement and clearing during the last 18 months or so, with developments in both systems and practices across equity and derivative markets.(2) These changes are taking place against a background of improvements to payment and settlement systems in other markets.

CREST—the electronic settlement system for UK equities—was introduced in July 1996, and the transition from

(1) See pages 406–12 of the November 1997 *Quarterly Bulletin* for a more detailed discussion.
(2) See 'Competition and co-operation: developments in cross-border securities settlement and derivatives clearing', pages 158–65.

Talisman (the earlier Stock Exchange system) was successfully completed on schedule in April 1997. There were concerns in the market during 1997 about CREST's ability to cope with the levels of trading activity resulting from demutualisation of building societies and from the introduction of order-driven trading to the London Stock Exchange last October (see above). In the event, CREST coped well with these challenges and has proved itself robust. It has regularly been settling more than 90% of trades on the intended settlement date, compared with around 70% achieved by Talisman.

Rapid growth of the OTC derivatives markets has led participants to explore ways to reduce the credit risk inherent in such business. Collateralisation—one possible solution—continued to grow throughout 1997 and looks set to do so again in 1998. The turmoil in the markets prompted by the Asian crisis led to many collateralisation arrangements being fully tested for the first time, as a spate of credit-rating changes and large price movements triggered large collateral calls. Although some problems were experienced (both operational and liquidity-driven), collateral arrangements appear generally to have worked satisfactorily.

A related solution is centralised management facilities such as Euroclear's collateral management service, launched last autumn in competition with Cedel's GCSS (though a similar scheme, the CME's DTC project, had been abandoned a few months earlier). LCH, which already clears the London derivatives exchanges, has started developing a service for clearing a range of vanilla OTC products along the same general principles as futures.

. . . and bond markets in Europe are being harmonised

The European Commission announced recommendations for the harmonisation of government bond markets during 1997 in preparation for the euro. Although redenomination of existing government debt was not deemed essential for the transition to the euro, it was argued that this would enhance liquidity and the credibility of the process, by demonstrating governments' commitment. The report also recommended that daycount conventions should be harmonised as actual/actual, and that business days should be defined as those on which the TARGET system is open. But the recommendations leave EMU countries some flexibility in their government debt issues; for example, it is open to governments to decide whether to have semi-annual or annual coupons.