The equity market crash

The dramatic fall in equity prices on most of the world's stock markets last October brought to the fore a number of questions on the markets' structure and functioning. Studies are under way in several centres which aim to explore the causes of the crash, the way that different markets—in particular the futures and options markets and the cash markets—reacted with one another, and the way that different groups of investors behaved. Some of these studies have already been published and include recommendations for changes to present arrangements. Others are still in preparation. This article[1] does not attempt a detailed analysis of the crash, nor does it present specific policy recommendations, but it draws out features that are of interest and importance. The first part of the article describes the events of the crash in the London, New York and Tokyo markets; the second part examines some structural issues highlighted by the crash.

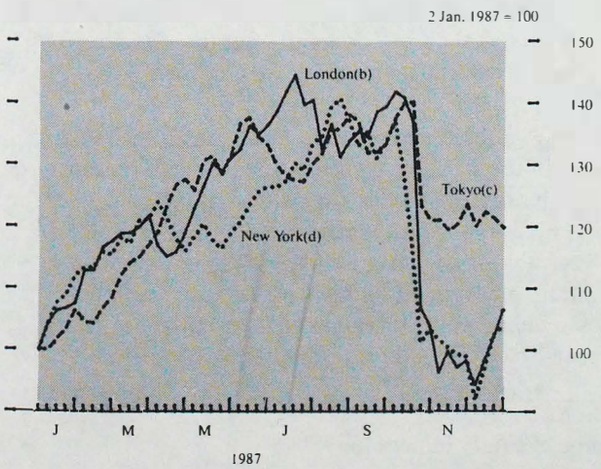
Share price movements

Background

The view was increasingly being taken well before the slump in share prices last October that equity markets were overvalued and that an adjustment was likely, especially given growing concerns about the US trade and fiscal deficits and the rise in US bond yields. As Chart 1 shows, the upward trend in share prices in New York and London faltered in April; and by June in Tokyo, July in London and August in New York, the bull market was fairly clearly losing momentum. Nevertheless, by the end of September all three markets had resumed their upward course. At its peak, the London market was 46% above its level at the beginning of the year, compared with 44% in New York and 42% in Tokyo.

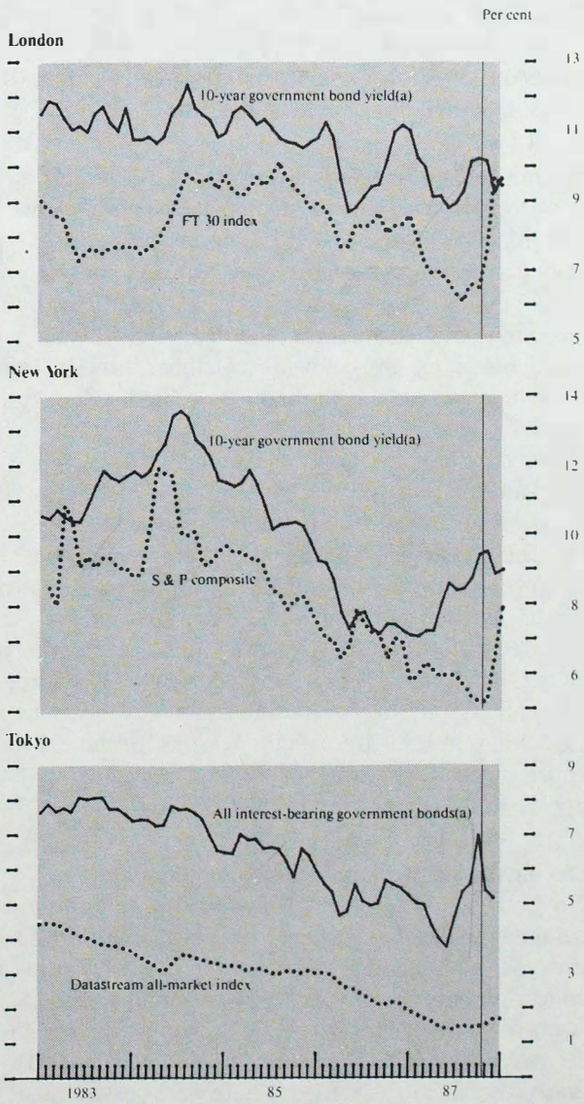
The bull market led to a substantial reduction in earnings yields in all three countries (Chart 2). As the chart shows,

Chart 1
Equity price indices[a]



(a) Figures in local currencies.
(b) London—FT-SE 100.
(c) Tokyo—Nikkei Dow.
(d) New York—Dow Jones Industrial Average.

Chart 2
Earnings and government bond yields



(a) Gross redemption yields.

(1) This article was prepared by the Bank's Financial Markets and Institutions Division with the help of unpublished data provided by the International Stock Exchange.

they reached levels during 1987 substantially below those characteristic of the previous four years. The reverse yield gap—the excess of the gross redemption yield on government bonds over the earnings yield on equities—also widened sharply in the first three quarters of 1987.

The market collapse

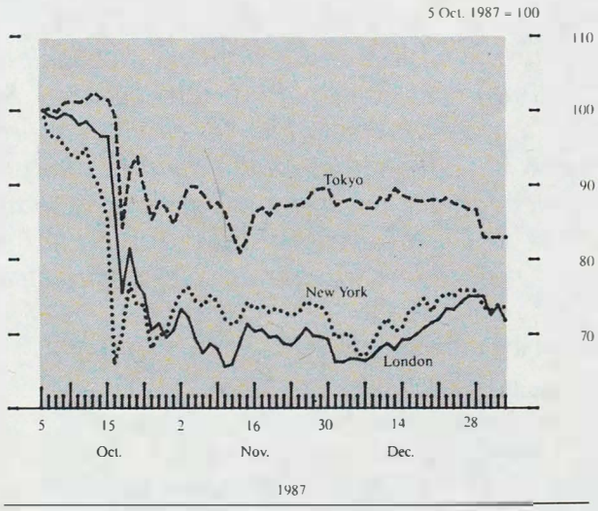
The downturn began in New York on 6 October. The Dow Jones index fell 92 points, 3.5%, apparently triggered by a modest tightening in German monetary policy and rumours of discord between the US and German authorities over the Louvre agreement. In London the FTSE index fell 1% while the Nikkei Dow in Tokyo rose by 0.3%. In the next seven days both the New York and London markets declined almost continuously, though the pace of the fall was much faster in New York. By contrast, the Tokyo market continued to rise, reaching a new record on Wednesday 14 October. On the same day, however, in response to poor US trade figures for August and the announcement of likely tax changes affecting the financing of corporate takeovers, the New York market fell by a record 95 points. This was followed by falls of 58 points on 15 October and 108 points on 16 October (the largest-ever one-day decline at the time).

The hurricane effectively closed most UK markets on 16 October. On Monday 19 October the FTSE opened 138 points down and closed 250 points (11%) down, having at one stage been off by 302 points. Triggered by rising US interest rates and fears of a slump in the dollar, the Dow Jones fell an unprecedented 508 points, 23%, taking the index 34% below its 5 October level. In Tokyo, by contrast, where the markets closed before New York opened, equity prices fell only 2%. On 20 October Tokyo declined by 15% and London by a further 12%. When the New York market opened there was an initial rise in prices which seems to have owed much to Federal Reserve Chairman Greenspan's statement that the Federal Reserve would provide liquidity to support the financial system. But the morning rally did not last and, by mid-day, selling pressures in cash and futures markets had all but halted trading. In the early afternoon, buy orders brought a resumption of trading and a recovery in the Dow Jones index. Although the reasons for this are not entirely clear, it appears to have been associated with the upturn in the Major Market Index futures contract.

During the last week in October and the first in November, New York and Tokyo fluctuated quite widely from day to day, but showed little net change. London, on the other hand, tended to drift lower, partly because of concerns about the prospective position of member firms of the International Stock Exchange (ISE) on the 2 November account day, when deals for the period of the crash were due to be settled. There were persistent, albeit unfounded, rumours that two equity market makers were in difficulties, and also worries about possible defaults by private investors. In addition, the BP issue at the end of October contributed to market uncertainty, although this was mitigated by the announcement of the Bank of England's repurchase arrangements.

London reached its lowest point (34% below 5 October) on 9 November and there was no substantial change

Chart 3
The crash



thereafter in either London or New York. New York was at its lowest on the day of the crash itself, 19 October. The low point in Tokyo came on 11 November, but the cumulative decline from 5 October was only 19%. Thereafter, the Nikkei Dow recovered, and by end-December it was only 17% below the 5 October level. The corresponding figures for New York and London were 27% and 28% respectively.

The drop in share prices on the three major exchanges was matched by falls elsewhere. The main continental exchanges reached a low point within two days of the London trough. The magnitudes of the declines from 5 October to the troughs in Paris, Frankfurt and Zurich were 34%, 40%, and 38% respectively. These markets had risen much less than London and after their decline they stood well below the levels at the beginning of 1987.

The figures quoted above are in local currencies. Taking account of the significant shifts in exchange rates during the fourth quarter of 1987, the pattern of price changes for foreign investors from the beginning of the crash to end-year was significantly different. Table A shows the even more marked fall in the New York market when prices are expressed in sterling and yen. In dollar terms, prices in Tokyo actually rose slightly.

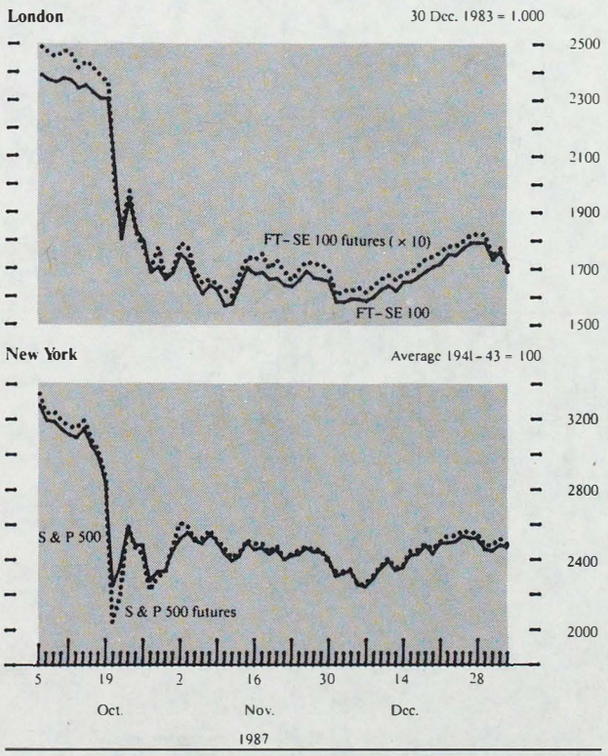
Table A
Change in equity indices in different currencies
Percentage changes from 5 October to 31 December

	London	New York	Tokyo
In sterling	*-28.2*	-36.5	-13.3
In dollars	-16.9	*-26.6*	+ 0.3
In yen	-31.4	-39.3	*-17.1*

As Chart 2 illustrates, the equity market crash led to substantial increases in earnings yields in London and New York, narrowing the reverse yield gap considerably, and at one point eliminating it entirely in London. The upward shift in earnings yields in Tokyo, although much less marked, came after three years of virtually uninterrupted decline. It coincided with a reduction in government bond yields, which meant that in Tokyo, too, the reverse yield gap narrowed.

Movements in futures compared with the underlying stock indices are shown in Chart 4. In London, on 19 October, the FTSE futures contract traded at a discount (on a cash and carry arbitrage basis—that is, reflecting the different costs of holding cash and futures positions) to

Chart 4
Comparison of indices and futures prices



the FTSE index. But thereafter the index and the future moved more closely in line. In New York, on the published figures, the S&P 500 futures contract dropped noticeably below the underlying index on 19 and 20 October. But the cessation of trading in a large number of stocks in the cash market made it difficult to establish an accurate value for the index and at times on 20 October trading in stock index futures was suspended. In Tokyo, an equivalent stock index futures hedging mechanism was not available.

Table B
Price volatilities[a]

	FTSE	Dow Jones	Nikkei Dow
5 October to 12 November[b]			
Close-to-close	4.15	5.49	3.88
Open-to-close	2.08	3.66	..
Third quarter			
Close-to-close	0.91	0.93	1.10

.. not available.

(a) Standard deviation, as a percentage of index, of daily price movements over the period shown.
(b) The period from the beginning to the end of the 'October' fall in share prices.

Price volatility

It is difficult to measure price volatility adequately in a single statistic, in particular during a period which includes something close to a step change in prices. There are, in particular, questions about how 'close-to-open' changes should be treated and about whether intra-day (say, hour-by-hour) or day-to-day changes are more significant.

Table B presents two of the simplest measures of volatility, the standard deviation of daily close-to-close and open-to-close price movements. On the close-to-close measure, volatility was nearly six times higher than the third quarter average in New York, over four times higher in London[1] and over three times higher in Tokyo. The figures also suggest that the volatility of the Dow Jones was higher during the crash than that of either the FTSE or the Nikkei Dow. This contrasts with the third quarter data which show little difference in the price volatility in each market.

The crash also saw a large increase in *intra-day* volatility in London. Between 19 and 23 October, when the gross movement in the FTSE index was about 1800 points, volatility (calculated analogously to the measures in Table B) was 3.3% per hour. This compares with intra-day volatility of only 0.3% per hour immediately pre-crash (between 5 and 16 October) and of 0.7% per hour between 12 and 30 November, when share prices were comparatively steady.

It has been suggested that the prices of the most liquid stocks were the most volatile, but this is not borne out by the evidence. In the United Kingdom, alpha[2] stocks are the most liquid; yet the data seem to indicate that they have been no more, and perhaps slightly less, volatile than the less 'visible' categories. This appears to hold true both before and after Big Bang and before and after the crash.

Trading and market structure

The second part of this article examines some aspects of trading behaviour and market structure which had a

(1) Part of the difference is accounted for by the fact that the decline in prices in New York was heavily concentrated on a single day, 19 October, whereas in London, for example, the decline was divided more evenly between 19 and 20 October.

(2) *Alpha stocks* are the most actively traded UK equities. Market makers are obliged to make continuous, firm two-way prices in a minimum size of 5,000 (previously 1,000) shares during mandatory trading hours on SEAQ (see below). Market makers have the option of posting firm quotes for deals of larger sizes.

Beta stocks are less actively traded than alphas, although registered market makers must still display continuous firm price quotes as for alphas.

For *gamma stocks* registered market makers post firm or indicative (previously only indicative) two-way prices on SEAQ.

Delta stocks are the least liquid category. The SEAQ screen does not show quotes for delta shares, but gives names of registered market makers and accredited dealers who are committed to quote a price on enquiry.

SEAQ is The Stock Exchange Automated Quotation System, introduced on 27 October 1986. It is the screen-based trading system which has replaced the Stock Exchange floor as the means for transmission of equity price information.

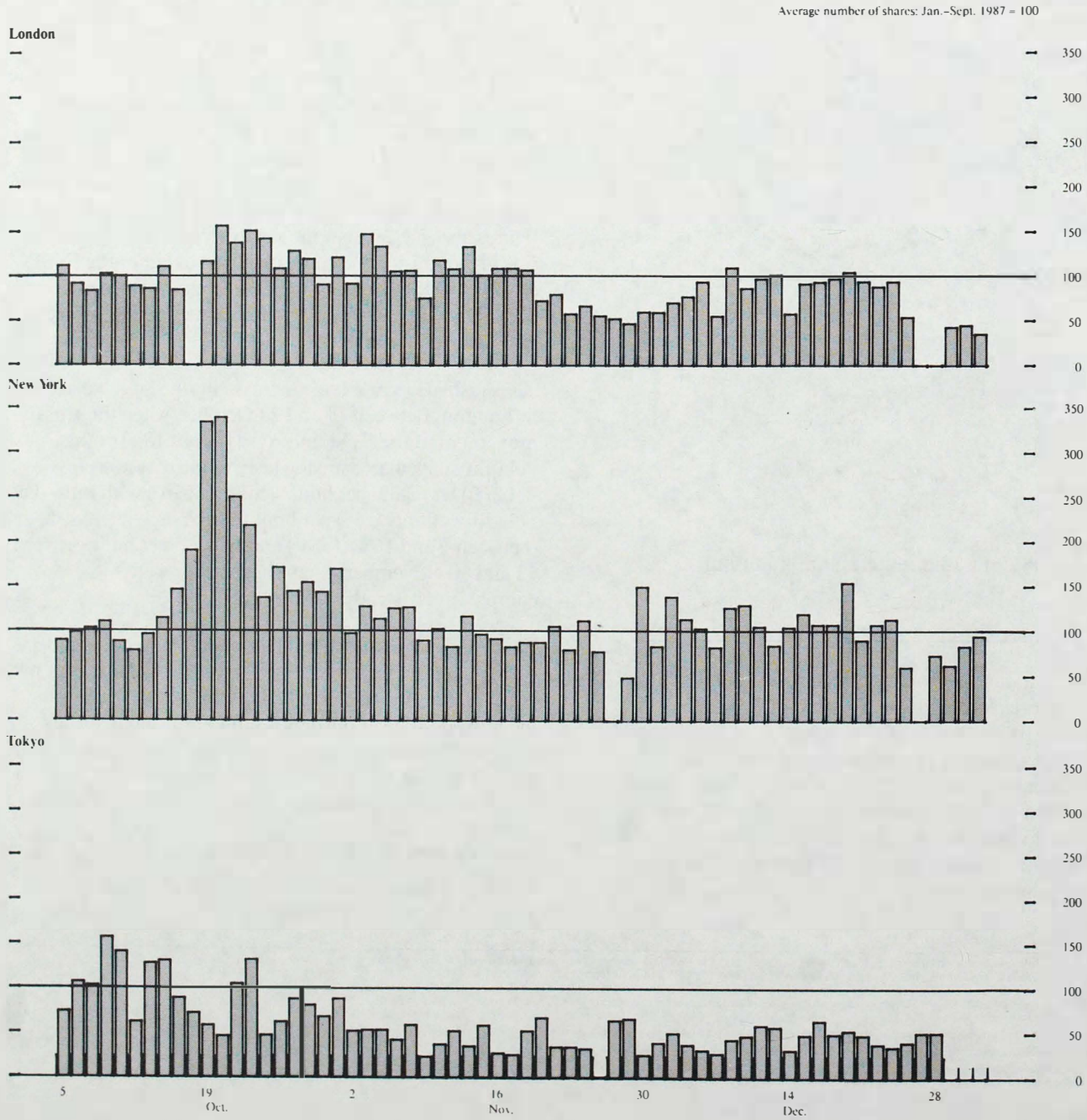
bearing on the course of the crash in London, New York and Tokyo. They are: the pattern of buyers and sellers; the particular role of foreign investors in each of the markets; dealing systems; and the interaction of futures and options markets with the 'cash' market.

Trading patterns

During the crash, trading volume increased very sharply in London, and even more so in New York; in Tokyo it fell. In London the number of shares traded in the week following the crash was some 40% above the daily average in the first nine months of 1987. There were over 100,000 customer bargains transacted on each of two days of the week beginning 19 October, more than twice the daily average over the same period. But the pace moderated abruptly: by the end of the month the daily number of bargains had returned to its pre-crash level, and thereafter continued to decline. During November, the daily average number of bargains was close to 30,000, about two thirds the average since Big Bang. The decline in trading since the crash has been particularly marked in beta and gamma stocks.

The distribution of trading between participants in the London market also altered during the crash. Customers accounted for 60% of all trades compared with the usual 50:50 split between customer and intra-market deals. After the initial downturn, over 80% of the customer transactions were buy orders, but most of these were small. The institutions appear to have been net sellers.

Chart 5
Daily turnover on the major stock exchanges



This is consistent with average bargain sizes. The normal bargain size averages about £22,000. The average size of purchase bargains from 21 October was distinctly lower, on some days only £12,000, while the average bargain size for sales was sometimes over £50,000. Private clients seemed on balance to be responding to the plunge in prices in a fairly measured way: a survey conducted by the ISE in early November suggested that very few of them planned to sell in the immediate future.

One reason for this pattern of trading may have been that UK institutions had been encouraged by the long bull market to take on an unusually large proportion of equities, both UK and overseas, compared with levels typical over the previous decade (see Table C). The rise in equity holdings was reinforced by the volume of new issues in the year, by commitments under the BP sub-underwriting arrangements and also, for some pension funds, by a reduction in net inflows as a result of contribution holidays. The relatively high proportion of equity holdings in institutional portfolios meant that some of those which might otherwise have been purchasers after the first decline in prices were not in practice in a position to buy. A subsidiary factor may have been that some insurance companies, expecting heavy claims after the storm on Friday 16 October, were anxious to preserve liquidity.

Table C
Equity proportion in portfolios of UK insurance companies and pension funds

Percentages

End-period	1982	1983	1984	1985	1986	1987 Q3(a)
UK equities	34	35	39	39	41	44
Overseas equities	8	10	10	11	12	14

(a) Estimated.

The decline in intra-market business, from 50% to 40% of the total, has been attributed to uncertainty which discouraged firms from trading on their own account, especially during periods when a 'fast market' was declared—that is, when prices were moving particularly rapidly, and during which SEAQ price quotations for alpha and beta equities became indicative rather than binding. It is difficult, however, to establish such a link with any certainty: fast market conditions were not declared after 22 October, yet intra-market business remained depressed. At the same time, intra-market business through inter-dealer brokers (IDBs) increased threefold from 20 October compared with pre-crash experience; the increased use of IDBs may have reflected greater sensitivity, in the unsettled market conditions, about giving competitors clues to the shape of a firm's book.

On 19 October, there were net customer sales of over £250 million, which the market makers took on and which added to their already long positions. Thereafter, the market makers were generally net sellers, although many were effectively obliged to remain long in the least liquid equities. The inability to shift these positions may have been associated with the post-crash decline in trading volume and continuing wide price spreads. While the detailed pattern of trading is uncertain, it seems possible that a halt to purchases by private clients, a halt to significant net sales by institutional investors and a continuing weakness in intra-market dealing left market makers with limited trading opportunities.

As in London, but to an even more marked degree, the New York market saw record volumes of trading during the crash. On 19 October the number of shares traded on the NYSE was more than three times the daily average for the year to end-September. According to the Investor Activity Report, published by the Securities Industry Association, each sector's share of total activity was little changed in October.

Institutions had been net sellers of equities on the NYSE in August and September. In October their net sales reached a new monthly record, 35% above the previous peak in April 1987 (the only other month in 1987 when institutional investors were net sellers). Institutions were heavy net sellers on most days in October; but they were actually net buyers on 19 and 20 October. The specialists[1] were heavy net buyers on 19 October, but sold an almost equal value of stock the following day. The non-specialist ('upstairs') member firms on the NYSE were also record net sellers in October. Their average net sales rose to 2.1 million shares a day from 1.3 million in September. The retail sector (including both private investors and corporate repurchase programmes) was a net purchaser in October of 6.4 million shares a day, compared with 600,000 shares per day in September and average daily net *sales* of 1.1 million shares in the first nine months of 1987.

One factor which gave support to the US market after the initial downturn was the issue of statements by a number of US corporations that they intended to buy back their own shares. Between 19 October and mid-November more than 800 US companies announced such buy-back programmes. In the past, major repurchase programmes appear to have had some effect in supporting stock prices, although on this occasion relatively few shares actually seem to have been bought.

By contrast with London and New York, turnover in Tokyo declined immediately after the fall in equity prices. There was little trading on 20 October, in part reflecting the large imbalance of selling over buying orders at their 'guideline' floor prices on that day.[2] The number of shares traded in Tokyo on 19 and 20 October was, on an average daily basis, some 50% below the level for the first nine months of 1987.

(1) The function of specialists on the NYSE is described in the next section.
(2) On the Tokyo Stock Exchange, there are limits, expressed in absolute amounts of yen, on how far the prices of individual shares may move in any one day.

In some respects the pattern of buyers and sellers in the Tokyo market resembled that in London and New York. The major net purchasers in the two weeks after the crash were private clients. There was a substantial increase in purchases on margin. There were also small net purchases by exchange members totalling ¥14 billion. Japanese banks, other financial institutions and non-financial corporations also made net purchases. The main selling in Tokyo appears to have been by foreigners. Underlying the Tokyo market are special characteristics which may make it less sensitive to market disturbances than other stock markets. For example, proportionally more stocks are firmly held by Japanese financial institutions and other major Japanese investors than in other markets.

The role of foreign investors

This section questions how far there was a tendency during the crash for investors to dispose disproportionately of foreign shares. The direct evidence is, at present, limited, but in Japan, for example, net sales of equities by foreigners totalled some $13 billion in October (compared with less than $2 billion in September). In other cases, the statistics available at present do not give as clear a picture.

The evidence in the United Kingdom from the quarterly transactions flow figures is that UK pension funds were heavy purchasers of overseas equities in 1987 (an estimated 35% of the increase in the cash value of their net assets to end-September being placed in overseas, mainly US, equities). Japanese investors were net purchasers of foreign stocks during the first three quarters of 1987, largely reflecting portfolio diversification out of US Treasury bonds and into blue chip US equities. In the United States, on the other hand, in the first three quarters of 1987, investors were net sellers of Japanese equities and net buyers of UK and other European equities; overall net sales of foreign equity totalled $1 billion in that period.

These positions could have meant a readiness to sell foreign equities. As already noted, data from Japan support this inference. In addition, there is plentiful anecdotal evidence that there was heavy selling of European equities in the London market during the crash. So far as US investors are concerned, the Brady Report suggested that some foreign selling may have been to take advantage of time zone differences, with investors selling in whichever market was open. Thus US mutual fund managers seem to have been heavy sellers of US stocks in London on 19 October before the NYSE market opened.

UK and US equity dealing systems

The specialist system in New York and the market-making system in London operate with somewhat different priorities. The specialist in New York assumes an obligation to act to prevent volatile price movements in the shares in which he has the sole obligation to make a market. As one element in this, he can delay, with the approval of the exchange, the opening of trading whenever the imbalance of orders would require a price significantly different from the previous day's close, and can halt trading during the day, again with the agreement of the exchange, if such an imbalance occurs. The UK structure, on the other hand, emphasises competition between a large number of market makers who are obliged to make two-way prices continuously throughout the trading day. It gives priority to liquidity rather than price stability. In fact, however, prices during the crash were no less stable in London than in New York. As for liquidity, certain stocks were at times untradable in New York. This was not a new phenomenon: trading halts have occurred on the NYSE on previous occasions when the market has fallen sharply—for example, in 1974–75 there were 900 trading halts.

The ISE remained open throughout the crash, although there were complaints that market makers' price quotes were not available for significant periods. On NASDAQ,[1] which is also a screen-based telephone market, some dealers shut up shop completely. In January 1988 NASDAQ announced a ban on market makers for a period (20 days) if they stop making markets for small orders (1,000 shares); in London the penalty imposed by ISE rules is three months suspension.

The capital resources readily available to the London market makers allowed them, in the initial stages of the crash at least, to absorb substantial amounts of stock. The market imbalance was spread among all the major firms active in the equities market, three quarters of which are part of well-capitalised financial conglomerates. In New York, on the other hand, there was pressure on specialist firms from a shortage of resources which could not be so easily remedied. When it became clear on 19 October that the NYSE specialists had been overwhelmed by sell orders and that the capital of some firms had been significantly eroded, banks were reluctant to extend further credit and some may have recalled loans. This led to several mergers during the crash. Serious consideration was given by the relevant authorities to a temporary halt in trading on the NYSE, because the positions accumulated by the specialists on 19 October and during the previous week placed them at financial risk. In the event, the NYSE announced on 22 October that trading would cease two hours early on each of the three following working days to enable firms to catch up with the backlog of paperwork.

Although London's experience during the crash was perhaps less obviously traumatic, there were departures from normal market practice in a number of respects. In the first place, market prices were changing so rapidly that on several occasions the ISE declared a 'fast market' and market makers were permitted to trade at prices which differed from the normally firm prices for alpha and beta equities quoted on SEAQ. The total duration of 'fast

(1) The National Association of Securities Dealers Automated Quotations, the US over-the-counter market and precursor of SEAQ.

market' conditions was, however, only some six hours in the week beginning 19 October. Second, the market makers in London responded to the trading conditions by increasing their spreads. The 'touch'—the spread between the highest bid and the lowest offered price—widened in all categories of stocks (Table D). During November the touch remained wide in the most liquid (alpha) stocks and widened further in the less liquid beta and gamma stocks. The touches in all equities remained high in December. Third, market makers reduced the size of bargain for which they were willing to quote. By 21 October, average quote sizes, at £145,000, were half their level a week earlier, and they remained at low levels into November. Finally, there was criticism that market makers were in some cases tardy in answering telephones, thus evading their obligation to make markets in all conditions.

Table D
The touch[a] on bargains of normal market size

	1986		1987					
	July	Oct.	Aug.	Sept.	Oct. (19–23)	Oct.	Nov.	Dec. (1–18)
Equity classification								
Alpha	0.8	0.7	0.9	0.9	1.2	1.4	2.0	1.7
Beta	1.8	1.3	1.5	1.5	1.9	1.9	3.5	2.1
Gamma	3.4	2.6	2.5	2.6	3.6	3.5	5.9	3.8

(a) The difference between the best bid and best offer price, expressed as a percentage of the average of the two.

The most serious concern in connection with 'structural' arrangements in London related to settlement. There were two aspects. First, an account period began on 12 October with a settlement date, for trading during the succeeding two weeks, of 2 November. As the period progressed, there was growing anxiety about the accumulation of counterparty risk and the possibility of defaults by private investors on account day. In the event the fears proved unfounded. A second aspect was the longstanding backlog of unsettled bargains, which again contributed to counterparty exposure. By October, however, the number of unsettled bargains was 50% below the August peak (and reduced trading volume in the weeks following the crash in fact facilitated a further marked improvement). Concern about counterparty exposure is nonetheless thought to have contributed to depressed sentiment in the London market.

In Tokyo, as already noted, the market was calm on 19 October and little trading took place on the following day; the special 'guideline' arrangements meant that the Tokyo market was not tested in the same way as London and New York.

Interaction of derivative product and cash markets

It has been argued that trading in derivative products associated with the equity markets contributed to both the speed of the decline in, and the volatility of, cash market prices, particularly in the United States. This is a complex issue and no attempt is made here to reach a conclusion on how the dynamics of the interaction worked in practice.

Particular attention has focused on the use of 'trading strategies', often triggered by computer programmes, of which two forms appear to have been particularly important in the United States: *index arbitrage programmes*, under which traders substitute a basket of the underlying stocks for stock index futures or vice versa depending on the relative prices and expected returns; and *non-arbitrage strategies*, such as those employed by investors trading on the direction of the stock market as a whole (who buy and sell index futures on the basis that futures can be executed more cheaply and quickly than the underlying stocks) and also 'portfolio insurance', which is designed to allow institutional investors partially to protect their portfolio if the market falls. Portfolio insurance, if implemented in the futures markets, involves selling futures as a hedge against a cash stock position. When stock prices decline, portfolio insurers normally increase their futures hedges relative to their underlying holding of stock.

Critics argue that the use of these trading strategies can cause a cascade effect, as follows: stock prices decline for some 'external' reason; participants sell futures so that if the market falls further they have locked in a price; the futures price falls in relation to the price of the stocks in the underlying index; arbitrageurs buy futures and sell stocks; stock prices fall further; more shorting of futures takes place; further arbitrage is undertaken; and so on.

In theory, arbitrage activity—through putting upward pressure on futures prices and downward pressure on stock prices—should limit or modify this pattern. The cascade effect might also in practice be inhibited, at least in the context of the New York market, by the 'short-sales' rules of the NYSE, which prohibit short-selling of stocks if the previous sale price represented a decrease. (For the United Kingdom, by contrast, there are few, if any, constraints on short-selling within an account period.) On the other hand, however, the halt to trading in either the cash market or the derivative products market could cause distortions in both the index and arbitrage activity related to it, thereby interrupting the self-balancing arbitrage mechanisms.

The role of derivative products in the October crash in the United States is far from clear-cut and still under review. The Brady Report, for example, indicated that portfolio insurers and other institutions sold in both the stock market and the futures market and that selling pressure in the futures market was transmitted to the stock markets by the mechanism of index arbitrage. According to Brady, sell programmes by three portfolio insurers on 19 October accounted for just under $2 billion sales in the cash market, and in the futures markets three portfolio insurers accounted for the equivalent of $2.8 billion of stock. The Brady Report concluded that, although index arbitrageurs were not the primary cause of price movements in the stock markets, they could be described as 'the transmission mechanism for the pressures initiated by other institutions'. The report commissioned by the New

York Stock Exchange (the Katzenbach Report) also concluded that the futures markets may have contributed to the speed of the fall in prices on the stock market.

Reports on the crash produced by the US futures exchanges, however, tend to present a rather different picture. The Chicago Mercantile Exchange, for example, argued that index arbitrage transferred to New York only a fraction of the total selling pressure experienced in Chicago and that, without the stock index futures markets, selling pressure on the NYSE would have increased and resulted in further price declines. The Chicago Board of Trade contended, similarly, that futures markets 'far from being a cause of the market decline, performed their hedging and risk-transfer functions admirably'. The Commodity Futures Trading Commission's estimate was that only 9% of shares traded on the NYSE on 19 October represented index arbitrage.

In contrast to the US markets, the use of stock-related derivative products in the United Kingdom is very limited and the volume of stock-index-related business is very small. Such programme trading as does take place in London, which is carried out on behalf of UK institutional investors, seems to be placed mainly on the US markets by US investment houses. In these circumstances, the interaction of the cash and derivative products markets seems to have played a very limited direct role in the crash in London.

Summary

This article has focused on the course rather than the causes or the consequences of the crash. On the evidence to date, the overall judgement must be that the international financial structure survived the shock at least passably well. There were no major insolvencies, although some firms sought additional capital from existing parents or by merger, and most markets, for all but relatively short periods, remained open.

But this assessment is only tentative. A good deal of evidence is still to be weighed and there are certainly aspects of present market arrangements and market behaviour in London which call for further examination. These include the experience of the 'retail' investor, the assessment of risks and capital adequacy for market participants, the role of the Stock Exchange account, the potential interaction between derivative and cash markets, and the feasibility and desirability of rules to limit the speed at which prices move.