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PART F

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SECRET

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Begins: 25/1/88.
Ends: 9/2/88.

Chancellor's (Lawson) Papers:

THE WORLD FINANCIAL
MARKETS 1987 - 1988

Disposal Directions: 25 Years

16/8/95.

PO -CH /NL/0110
PART F

From: S D H SARGENT
Date: 25 January 1988

PRINCIPAL PRIVATE SECRETARY

cc Sir G Littler
Sir T Burns
Mr Anson
Dame Anne Mueller

HIGH FLYERS FOR THE CITY

... Sir Peter Middleton thought the Chancellor ought to see the attached advertisement placed by a recruitment consultancy in the January edition of FDA News, which is specifically targetted at Principals from the Treasury and DTI, as well as the Inland Revenue and Customs.

S D H SARGENT
Private Secretary

BLT

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ps3/50T

UNCLASSIFIED

FROM: J M G TAYLOR
DATE: 25 January 1988

SIR T BURNS

cc PS/Economic Secretary
Sir P Middleton
Sir G Littler
Mr Scholar
Mr H Evans
Mr Odling-Smee
Mr Peretz
Mr ~~S J Davies~~ J Hibbert
Mr Savage
Mr Cropper

CURRENCIES AND CREDIT MARKETS: PAPER BY DR KURT RICHEBACHER

The Chancellor was most grateful for your minute of 22 January.

J M G TAYLOR

ps2/40M

UNCLASSIFIED

FROM: MISS M P WALLACE
DATE: 25 January 1988

SIR T BURNS

JOHN FORSYTH - MORGAN GRENFELL

... I attach a minute from Nigel Forman, recounting a conversation with John Forsyth of Morgan Grenfell. Mr Forsyth has offered to come and discuss the work he is doing on the behaviour of savings in the UK. The Chancellor would be grateful if you could follow this up.

MOIRA WALLACE

From: Nigel Forman.
22nd January 1988.

To: Chancellor.

John Forsyth - Morgan Grenfell.

1. You asked me for a brief note on my phone call this afternoon with John Forsyth of Morgan Grenfell.

2. He said that he and his colleagues would be very pleased to come to Number 11 or the Treasury any time to tell you and your officials about the work in progress which he is doing on the behaviour of savings in this country. This is a development of the work you have already seen on the so-called 'inheritance effect' and it was illustrated at least in part by the chart which he showed you at lunch today.

3. I thanked him and said that your office would certainly get in touch to follow this up if and when a suitable opportunity arose.

NF

PAM13

FROM: MOIRA WALLACE
DATE: 26 JANUARY 1988

PS/SIR P MIDDLETON

cc Sir G Littler
Sir T Burns
Mr Anson
Dame Anne Mueller

HIGH FLYERS FOR THE CITY

The Chancellor has seen and was grateful for your minute of 25 January.

MPW.

MOIRA WALLACE

SECRET

MG NOON REPORT

FINANCIAL MARKETS — Tuesday 26 January 1988

Previous Close	Opening	10 AM		NOON	Oil Price (11 AM)	
74.4	74.1	74.2	£ERI	74.2		
1.7715	1.7695	1.7700	$/£	1.7705	Feb	$16.50
2.9735	2.9630	2.9639	DM/£	2.9651	Mar	$16.52
1.6785	1.6745	1.6745	DM/$	1.6747	Apr	$16.32
127.85	127.52	127.35	Yen/$	127.49		

UK interbank £			Eurodollars	
8 1/8	(-1/8)	7 day	6 3/4	(-)
8 3/8	(-1/8)	1 month	6 7/8	(-)
8 3/4	(-1/32)	3 month	7	(-)
9 1/4	(+1/16)	12 month	7 1/2	(-1/16)

Figures in brackets show change since previous market close

MARKET COMMENT: The dollar was little changed in thin New York trading but eased in the Far East on disappointment over Reagan's State of the Union address in which he opposed tax increases. It has remained steady this morning. Sterling suffered widespread proffesional selling during early morning on bearish sentiment ahead of trade figures on Thursday. The US, Japanese and Hong Kong equity markets closed up on yesterday. Dow Jones 1946.5 +42.9, Nikkei 23499 +180 and Hang Seng 2426.1 +18.7. The FTSE100 opened at 1763.8 +1.6 and at 12.10 was 1772.0 +10. The gilts market opened easier in line with sterling and has drifted lower for most of the morning.

R M Pabbie

MARKET INTERVENTION ($m)

Overnight -

Today so far -

Total -

OTHER COUNTRIES INTERVENTION ($m)

Belgium +39DM

GILTS

	Latest market movements	Price change since previous close
Shorts	Steady	-7/32
Mediums	Steady	-13/32
Longs	Easier	-24/32
Futures (Long Contracts)		-31/32 (Vol:14403)

Gilt Sales since market opening

£0 million

NAME: Miss R J McRobbie, MG1 Division
TEL NOS: 270 5557/5560

SECRET

PMP

MG NOON REPORT

FINANCIAL MARKETS — Wednesday 27 January 1988

Previous Close	Opening	10 AM		NOON
74.3	74.5	74.4	£ERI	74.4
1.7730	1.7815	1.7780	$/£	1.7759
2.9698	2.9698	2.9693	DM/£	2.9727
1.6750	1.6670	1.6700	DM/$	1.6739
127.64	127.65	127.75	Yen/$	127.83

Oil Price (11 AM)

Feb	$16.32
Mar	$16.42
Apr	$16.27

UK interbank £			Eurodollars	
8 5/8	(+1/2)	7 day	6 3/4	(-)
8 3/8	(-1/16)	1 month	6 15/16	(-)
8 13/16	(-)	3 month	7 1/16	(-)
9 3/8	(+1/16)	12 month	7 5/8	(-)

Figures in brackets show change since previous market close

MARKET COMMENT: The Dollar eased slightly in New York on profit taking, but remained relatively unchanged in the Far East in technical trading. It has firmed slightly this morning. Sterling is slightly firmer against the Mark. Markets now await US Q4 GNP figures at 1.30pm. The Belgians cut their discount rate by 1/4% this morning but it had no effect as it was totally expected.
The US, Japanese and Hong Kong markets closed down on yesterdays close. Dow Jones 1920.6 -25.9, Nikkei 23336 -162 and Hang Seng 2412.6 -13.4. The FTSE100 opened at 1758.9 -8.4 and at 12.10 was 1758.5 -8.8.
The gilts market opened easier this morning and has traded very quietly.

R McRobbie

MARKET INTERVENTION ($m)

Overnight	-
Today so far	-
Total	-

OTHER COUNTRIES INTERVENTION ($m)

GILTS

	Latest market movements	Price change since previous close
Shorts	Steady	0
Mediums	Easier	-6/32
Longs	Better	-8/32
Futures (Long Contracts)		-7/32 (Vol:7281)

Gilt Sales since market opening

+£2.7 million

NAME: Miss R J McRobbie, MG1 Division
TEL NOS: 270 5557/5560

SECRET

MG NOON REPORT

FINANCIAL MARKETS — Thursday 28 January 1988

Previous Close	Opening	10 AM		NOON		Oil Price (11 AM)	
74.5	74.5	74.5	£ERI	74.4			
1.7790	1.7830	1.7830	$/£	1.7778	1.7795	Feb	$16.05
2.9731	2.9687	2.9696	DM/£	2.9668	2.9675	Mar	$16.15
1.6712	1.6650	1.6655	DM/$	1.6688		Apr	$16.05
127.60	127.02	127.07	Yen/$	127.20			

UK interbank £			Eurodollars	
8 1/8	(-)	7 day	6 3/4	(-)
8 13/16	(+3/8)	1 month	6 13/16	(-)
8 5/8	(-3/16)	3 month	7	(-)
9 1/4	(-1/16)	12 month	7 1/2	(-3/16)

Figures in brackets show change since previous market close

MARKET COMMENT: The dollar drifted lower in New York after yesterdays GNP figures but remained steady in the Far East. Sterling opened firm and steady and remained so in early trading ahead of the trade figures. After publication it eased slightly but is now steady.
The US equity market closed down on yesterday with the Japanese and Hong Kong markets closing up. Dow Jones 1911.1 -9.5, Nikkei 23587 +251.3 and Hang Seng 2412.7 +0.1. The FTSE100 opened at 1766.8 +1.6 and at 12.10 was 1771.3 +6.1.
The gilts market opened stronger this morning in line with the US bond market and went ahead steadily until the announcement of the UK trade figures when it fell slightly.

R M Kelbie

MARKET INTERVENTION ($m)

Overnight	-
Today so far	-
Total	-

OTHER COUNTRIES INTERVENTION ($m)

Japan +7$
France +120DM

GILTS

	Latest market movements	Price change since previous close
Shorts	Better	+7/32
Mediums	Easier	+9/32
Longs	Easier	+18/32
Futures (Long Contracts)		+25/32 (Vol: 18994)

Gilt Sales since market opening

+£70.6 million

Mixed Sales.

NAME: Miss R J McRobbie, MG1 Division

DATE: 29/1/88.

9.0am MARKET REPORT

	£ERI	$/£	DM/$	DM/£	Yen/$	Yen/£
NEW YORK CLOSE		1.7510	1.6950	2.9679	128.82	225.56
LONDON (8.30am)	74.0	1.7515	1.6952	2.9691	129.05	225.84
9.00am	74.1	1.7540	1.6940	2.9713		

	opening	change from previous close
3 month interbank rates	9 3/8	—
3 month eurodollar rates	6 3/4	—
1 month interbank	8 7/8	—

Intervention:

—

16.40 (-20) 16.67 (-18) 16.57 (-10)

Comment:

29/1/88.

THE STOCK MARKET FALL AND ITS LESSONS

SPEECH BY SIR NICHOLAS GOODISON, CHAIRMAN OF THE INTERNATIONAL STOCK EXCHANGE, AT THE CITY UNIVERSITY SYMPOSIUM ON INDUSTRY AND FINANCE, 10TH FEBRUARY, 1988.

I shall dwell this evening particularly on the events of last October. They subjected our new International Stock Exchange, its market system and its supervision, to a very severe test. Did the reforms of 1986 pass the test? Are there lessons for the future? Will the sharp loss of confidence implicit in the October collapse halt the development of the international capital market which we have tried to establish in London?

What Happened?

The events of the week of 19th October 1987 have been the subject of several official reports in the U.S., much comment and many speeches.

All of them have analysed in some detail what happened and why it happened. The "why" is a good starting point this evening.

With the benefit of hindsight, it can be seen that the market rise in 1987 was excessive. Many of us were arguing during those buoyant months that on fundamental grounds world equity markets were valued too optimistically. Investors appeared to disregard certain fundamental points in their enthusiasm for rising markets:

- the yield gap between bonds and equities, after allowing for inflation, was too wide. In London the average PE ratio was the highest since the last wave of excessive optimism in 1973.

- the acute imbalances in the world, and particularly the U.S. external and fiscal deficits, were cause for caution and not for optimism.

- the world was, indeed is, by no means out of the wood in its attempts to solve the problems of Third World debt.

The correction came in October. It reflected these worries and was probably triggered by a sudden loss of confidence as people saw interest rates rising, the dollar weakening and apparent disagreements among the U.S. and German authorities on the way forward.

When it came, the correction was steep and rapid.

The causes will no doubt be the basis of several doctoral theses in due course, and I shall not attempt to write one now. I would be more interested, since I do not regard the extent of the falls as surprising, in learning more of the reasons for the rise of the equity markets in 1987. This seems indeed an instructive field for study. We

need to know about the actions and attitudes of the dominant investors during 1987, because they have much to teach us for the future.

Here, for now, are a few simple observations on the sequence of events -

- Although the major fall in world markets happened on Monday, 19th October, the U.S. markets had been falling in the previous week. On the last three trading days of that week the Dow Jones Index fell nearly 200 points in total.

- Because of the gale London lost a trading day - Friday - on which it could have reacted to the week's events in the U.S. Market-Makers in London came into work on Monday with bull positions of about £1.25 bn.

- The stock market in New York and the futures markets in Chicago became disconnected. Instead of one being a hedge against the other, the two markets were chasing each other's tails in a downward spiral.

The fact is that the markets' ability to absorb new stock was soon exhausted. The weight of selling was such that it needed heavy buying to stabilise prices. There were not enough buyers. The investors who had bought all the way up on the theory that someone else would buy at even higher prices learned a sharp lesson. So did the practitioners of portfolio insurance, who assumed that there would always be enough liquidity around to effect the insurance. It is a myth that liquidity in any market is limitless.

In the U.K. institutional investors had run down their liquidity by buying during 1987 and were faced with large potential underwriting liabilities on rights issues as well as an enormous liability on B.P. The market fall made them even shorter of liquidity as these underwriting commitments came home. And on the Monday the market-makers' bull positions were themselves a downward pressure.

The difficulties in the U.S. market, relying as it does on the specialists trying to match supply and demand at declining prices, have been well publicised. The enormous selling pressure overwhelmed the system until in the case of many stocks an equilibrium price was reached far below the previous day's close. The specialists were shown to be acutely short of capital. In London the market went faster to its floor owing to the system of competing market-makers, but capital was no problem, as I shall show.

London's Response

What was the response of our market to this crisis?

First, we stayed open.

Second, we ensured that our financial monitoring of firms was put into high gear.

We were able to stay open because of the new market structure introduced in 1986. Our system of competing market-makers, many owned by banks and other financial institutions, showed that it had the strength of capital to absorb the shocks, and to adapt to violently changing conditions. Our electronic systems had the capacity to handle record volumes of business. Customer transactions went over 100,000 bargains per day on October 21st and 22nd, which far exceeded the planned capacity of the systems.

For several very short periods during the week of the crash, we were obliged to declare a "fast market", a convention which relieves market makers of the obligation to quote firm prices. But I stress that these were for limited periods. Our quality of Markets specialists, who have looked into the matter very carefully, have found strong evidence that customer business was generally executed at prices close to the quotes on our SEAQ screens. In other words, the fall consisted not simply of market makers marking down their quoted prices continuously. There was actual business at the quoted prices all the way down.

So our market stayed open, and allowed market forces to play against each other until equilibrium was reached at a lower level. It coped with the crash in a way that the old jobbing system could not have coped.

As for financial supervision unusual circumstances demanded unusual action, and we took it.

I have mentioned the fact that market makers in London are well capitalised. The strength of the careful financial monitoring and regulatory system which we have built up over many years, and close co-operation between us and the Bank of England, ensured that the market makers stayed well-capitalised. There were no defaults among Member Firms. Without the regulatory base and the co-operation with the Bank there could well have been a different story.

Our regulatory actions also showed how effective the Stock Exchange's flexible approach to day to day financial regulation can be. Firms were asked by our Surveillance Division to introduce capital as necessary in order to meet their basic capital requirements on a day to day basis, and did so. There were no automatic suspensions or defaults just because a firm had temporarily fallen short of its capital requirements.

The Recommendations of American Studies

I referred at the start to numerous studies recently published in America on the crash. We have seen the report of the Presidential Task Force, known as the Brady report, the SEC report, reports published by the Chicago futures exchanges, and the Katzenbach report on the impact of programme trading commissioned by the New York Stock Exchange. Their authors represent different points of view, different markets and different institutions. There is much disagreement between them on such fundamental

questions as whether the futures markets contributed to the speed of the fall. New York says yes. Chicago says no. Our financial papers have reported the recommendations of these studies and I will not take up your time by listing them all. But there are a number of points that are particularly important in themselves or could be relevant to London.

They focus on five main themes.

First a wish to reduce volatility, because it increases the risks inherent in market making. If market makers perceive a greater risk, liquidity will be reduced, and this in turn can affect investors' confidence in shares. Several steps to reduce volatility have been suggested. Brady suggested "circuit breakers" in the form of price limits and co-ordinated trading halts. The SEC proposed among other things increased margins on options and futures and physical delivery of securities in the futures market. I note that Katzenbach declared that setting limits to the movement of share prices within the trading day would be 'futile'. The SEC has also rejected the idea.

The second theme is the interaction of the markets in derivative products with those in the underlying instruments, particularly the influence of the market in stock index futures on the equity market. The American derivative markets had grown far larger than the underlying markets. Turnover in the Standard and Poors 500 stock index future was four times the New York Stock Exchange's turnover in the underlying equities. The derivative tail had outgrown the equity dog. Both the SEC and the authors of the Katzenbach report were clearly convinced that this gigantic tail wagged the dog on the Monday and Tuesday of the crisis week in October. In their eyes the index future drew the equity market down behind it and brought the system close to collapse. They both recommend a most radical remedy which I mentioned just now under the heading of volatility: that henceforth settlement in index futures should be in kind, instead of cash. This would mean purchase and delivery of a basket of stocks, in the form of a certificate of ownership in an open-end market fund, based on the index in question and fully backed by shares.

The third theme, which grows out of the second, is the need for unified regulation across the underlying and derivative markets. Brady said the Federal Reserve Board should become the final regulator. The SEC would prefer to assume that role itself.

Fourth, the Brady Report also talks about making margins consistent across all the connected markets, in order to correct the bias in favour of operating through the futures market rather than through the equity market.

A fifth major recommendation is for curbs on programme trading and portfolio insurance. The mechanical application of these techniques, and index arbitrage, by major institutions added to the weight of selling pressure. The New York Stock Exchange and some of its member firms have already introduced curbs on these techniques.

Now, these are all very important issues and recommendations and I doubt if other reports and studies due in the United States will add much to them. We clearly need to think about them here. Perhaps I can best contribute to this thinking process by drawing my own present conclusions from the events of October. Here they are.

Conclusions

First, do not shoot the messenger. He is trying to tell you something.

There is a tendency, natural among humankind, to blame the market itself in some way for the behaviour of the commodity in which it deals. I am not arguing that changes in market structure and market technology have had no effect on price formation. To deny it would be absurd. The way information is now disseminated, almost instantaneously, across the world, and the speed at which our own systems disseminated prices simultaneously to many intermediaries and investors, throughout Britain and overseas have accelerated the speed of operations and increased their volume. But what should our response to this be? To introduce treacle into the system? or to seek ways of enabling operators to work faster?

In London we do not regard the speedy and efficient settling of prices as a bad thing. We are committed to building a free and efficient market, one that offers buyers and sellers the best system possible for them to set the price. Our post Big Bang market system and technology are built on that principle.

We adopted a competitive market maker system because in our firm view it is best able to cope with the fast-moving international and round-the-clock markets of today. In such a system price limits or other artificial devices for putting treacle into the system would be futile.

The main finding of the Quality of Markets study of the crash which was presented to the press this morning, is that our market worked rather well in that testing time. But that gives us no grounds for complacency. There are lessons to be learned.

We will want to consider, for example, what lessons to draw from American experience in automated execution before our own SAEF system is introduced later this year. We shall want to look at the scope which our new telephone system, installed since Black Monday, gives us for monitoring and enforcing rules governing the answering of telephones by market-makers.

In London, we also need to think about options and futures.

The availability of hedging is important to investors in equities, but when the derivative markets grow to such a size that the tail wags the dog they become dangerous. What attitude should we take to their

development here? At present trading on the "Footsie 100" future is only 10% of total trade in U.K. equities, compared to 400% for its American equivalent. At this stage, our aim should be to encourage their development and improve their connection with the equity market by more index arbitrage, and by making sure that SAEF, our small order automated execution facility, is introduced on schedule. Likewise we have little to fear from programme trading and portfolio insurance both of which are still in their infancy here. Of course we must follow developments in the U.S.A. with close attention and we must be careful that we do not find our markets exposed to the sudden application of techniques by operators which have been deemed harmful in the US. There could be important lessons in the American experience for our markets in a few years time.

Next, a strong system of financial regulation is vital. The investing public will not participate in a market-place unless it is soundly financed and can be seen to be such by the presence of strong regulatory and monitoring systems. The systems must however be flexible in their ability to react to events. Financial rules should not be based on unusual events and extraordinary market movements. There should be a sound basic capital structure for normal times (bearing in mind the likely increase in volatility arising from the globalisation of markets) and a readiness and ability to impose extra requirements in abnormal times. The events of October fully vindicated the Stock Exchange's practised methods of financial regulation and surveillance. Rigid new rules imposing excessive normal capital requirements with an inability to react to abnormal events flexibly are not the way to do it.

Close co-operation between financial regulators is crucial. Again, it should be re-active and not too rigid, so that ad hoc measures can be instantly adopted. It should be international and not just national and it must be led by Central Banks.

Let me explain this further.

The various American reports talk of the need for unified regulation. They are right. In London, as I have shown, we already have it to a large extent. Our options market is part of the Exchange. The futures market is not, but there is a connection through The Securities Association which will regulate its members' activities in futures. During October, LIFFE staff and our own kept in close touch and stood ready to act together in case it was required.

But this is only part of the need. I have long maintained that the growing role of banks in the securities business means that banking and securities regulators are set on a path of co-operation and convergence. The events of October brought this need into sharp relief. It is my view, given the heavy involvement of banks in securities markets and the risk which this brings to the world financial system, that Central Banks must and will become the prime financial regulators. The Bank of England is already in this role in the gilt-edged market and we greatly

welcomed its active interest and co-operation, during the events of October, in our supervision of our other markets.

For their part Governments will need to pay increasingly close attention to the markets in risk capital. They will need to do this not only because excessive and sudden swings in values upset confidence among ordinary savers and might damage the desirable cause of wider share ownership. They also need to concern themselves because the ordinary share market is a crucial and influential part of the mechanism for providing long-term capital. The most worrying effect of a sharp collapse of confidence, coupled with a shortage of liquidity, such as we saw in October, was the disappearance of the market for new equity capital. It takes time after such a savage event for the capital market to revive.

But I mean more than just this. Governments themselves in different parts of the world have an increasingly immediate interest in equity markets. Some have created this interest because they have successfully embarked on large programmes of wider share ownership or privatisation of state-controlled businesses or both. Others have run out of money and are trying to convert overseas debt into equity holdings in national enterprises. Yet others, worn down by the inefficiencies of communist bureaucracy, are thinking of ways to tap private savings and bring a greater element of democratic control into state-owned industries. This worldwide move to finance industrial capital formation more through the issue of equity can only mean a greater Government interest in smoothing out excesses of enthusiasm and fear, and in considering the needs of equity investors when taking economic and fiscal decisions. The internationalisation of investment adds a dimension to all this with which Governments who manage their own debt markets are already familiar.

From all this, you will have gathered that I think it would be unwise for the stock market in the United Kingdom to rush into further radical changes.

Let us be thankful that our stock market displayed in October a combination of sturdiness and flexibility that allowed it to bend but not break in the great wind that blew. Our Big Bang reforms have now been tested both by the huge increase in volumes during 1987, and by the savage market falls in October. They handled both in a way we can be proud of. International trading in equities will surely revive because all the forces that gave it birth are still in being. When that revival comes London will make new advances as the leading capital market in Europe and the world's greatest market for international issuers and investors.

42aG/NH/1124/40

BF to M 2/2

Ch/ content to write - or prefer FST to take on?

1. MR ILETT
2. CHANCELLOR

MPW 29/1

FIM (and HF before it) have consistently warned the Stock Exchange of the very long lead times needed for primary legislation. So it is difficult to feel much sympathy for Sir N. Goodison when he demands immediate legislation because he has brought forward his own timetable. Nevertheless there are Treasury interests pointing to early legislation, and DTI officials need a push. So I agree with Mr Neilson's recommendation that you should write to Lord Young.

M. 29/1

FROM: M NEILSON

DATE: 29 January 1988

cc PS/Financial Secretary
PS/Economic Secretary
Sir P Middleton
Sir G Littler
Mr Monck
Mr Scholar
Mrs Lomax
Mr Moore
Mrs Brown
Parliamentary Clerk
Miss Evans
Mr P S Hall
Mr Blower
Mr Call

Mr Willis IR

LEGISLATION FOR TAURUS

At the privatisation seminar Sir Nicholas Goodison mentioned that legislation would be needed before TAURUS - the Stock Exchange's system for a electronic transfer of shares - could become operational. He was concerned that the legislation needed to allow shares to be held in paperless form might not be available in time.

2. The position is as follows. This is a matter on which the DTI is in the lead. We have for some time realised the importance of TAURUS to wider share ownership, because of the impact it should have on dealing costs - and indeed for the efficiency of the market generally. As a result, we have been encouraging the Stock Exchange to press ahead with setting it up, and to come forward in good time with proposals for legislation. In particular, we have stressed the long lead periods involved in getting legislative time. The problem is, of course, that the Stock Exchange has to tell the DTI precisely what the Bill needs to achieve, and that depends on precisely how the system is going to work. We have also been pressing DTI, as the lead department, to ensure that they - and we - do not find ourselves in the position that TAURUS is held up by absence of legislation.

The Stock Exchange's long-standing plan was to bring TAURUS into operation in September 1989. So DTI intended to legislate in 1988/89. But the Stock Exchange has recently, under pressure from settlement problems, been considering bringing TAURUS forward to March 1989 - which would require legislation either in the present session or very early in the 1988-89 session. DTI hoped to tack the legislation onto their Financial Markets Bill in the present session, though they did not clear this with QL and would probably have met the Lord President's veto. Rather foolishly, DTI officials held out some hope to the Stock Exchange that this tactic would work. However, the Financial Markets Bill has now been postponed to the 1988-89 session (and is likely to be subsumed into the Companies Bill). DTI have therefore had to fall back on the prospective Companies Bill for Taurus also, so the legislation will not be ready until mid-1989. DTI officials are not particularly concerned about this because they doubt if the Stock Exchange could have TAURUS ready before September 1989 even if the legislation was available.

4. Even if DTI officials' scepticism is justified, the fact that the legislation will not be ready until mid-1989 gives the Stock Exchange the chance to blame the Government for their failure to introduce up-to-date settlement systems more quickly. Sir N Goodison's remarks were a first shot in that direction. Whatever we may say about the Stock Exchange failing to come forward with detailed proposals for the content of the legislation in time, the Government's position will not look very good. And there is always the possiblity that absence of legislation really will hold up TAURUS, and thus delay reductions in dealing costs; the Companies Bill is a probable for 1988/89 but not yet formally agreed.

5. There are two other Treasury interests in TAURUS. First, the privatisation programme. The first water/electricity sale may begin in Autumn 1989, and past experience and common sense suggest that if this coincides with the introduction of TAURUS, the combination of unfamiliar settlement arrangements and high volumes of small transactions may create logistical problems. At best, these would be a distraction. At worst, we could face arguments of the kind that emerged before the BP issue, for changes in the timing and/or structure of the issue. In the longer term of course TAURUS should substantially reduce the settlement problems associated with privatisations, because it will reduce the paper flow associated with other share transactions.

6. Second, TAURUS will produce major changes in the way that stamp duty is collected on Stock Exchange transactions. The Revenue and FIM have been keeping closely in touch with the Stock Exchange on this. Our understanding from what the Stock Exchange has told us is that it would be possible to carry on for a short time under existing legislation. But we cannot be confident of this. As with the main "Taurus" Bill, the problem is being sure about detail. In any event it is very likely that Finance Bill space will be needed to put the collection arrangements on a sensible footing.

7. If TAURUS is not in place until September 1989, we could use the 1989 Finance Bill. But if TAURUS begins operating in March/April 1989 the system would have to operate under existing legislation for the first few months. (The Revenue think they could collect tax on this basis with some small increase in staffing). Pressure on this year's Finance Bill apart, legislation this year would only be sensible if the Stock Exchange became much clearer about what they intend doing than they are now, and if DTI's own legislation was in near final form. The Revenue could probably live with an April 1989 start date, without legislation in the 1988 Finance Bill, but the Stock Exchange and DTI need to sort themselves out quickly so that we can be sure of this, and so that the Revenue can negotiate any temporary arrangements with the Stock Exchange.

8. Our overall interest is clearly to press for TAURUS to be brought in as soon as possible. There seems no prospect of legislation in the present session. But, if the Stock Exchange really could have TAURUS up and running by early 1989, there might be a case for a separate bill, dealing only with TAURUS, which could be introduced early in the 1988-89 session, and receive Royal Assent early in 1989. It would help if the Opposition accepted the Second Reading Committee procedure, as they did with the Treasury's Stock Transfer Act 1982, (which removed the requirement for paper gilts certificates when the Central Gilts Office was set up). But DTI fear that any provision dealing with City affairs may now excite too much interest for that.

9. DTI have tended to overlook our locus in this area. I attach an exchange of correspondence between the Deputy Chairman of the Stock Exchange and Lord Young, in which Lord Young rules out legislation

before Autumn 1989 (we were only informed about their correspondence after the event). We think it would be useful for you, or the Financial Secretary, to write to Lord Young firmly registering your interest and asking what he intends to do about the TAURUS legislation. At the very least this should give us confirmation that DTI plan to use the 1988/89 Companies Bill for this purpose, together with a formal assessment of the likelihood that TAURUS will be ready before the legislation. At best Lord Young might be prompted to consider other options, such as a short Bill early in the 1988/89 session dealing only with TAURUS.

10. I attach a draft letter for you to send Lord Young.

M NEILSON

42aG/NH/1124/40

DRAFT LETTER TO:

The Right Hon Lord Young of Graffham
Secretary of State for Trade and Industry

A LEGISLATION FOR TAURUS

Nicholas Goodison recently mentioned to me his concerns that implementation of TAURUS may be held up by delays in passing the necessary legislation. I was disturbed to hear this. While I appreciate that it is quite possible that the Stock Exchange's implementation timetable may slip, and that they have come forward very late with legislative proposals, there must be a risk that the Government will be blamed for the late introduction of TAURUS.

My main concern regards wider share ownership - TAURUS should produce a major, and long overdue, reduction in share dealing costs for small investors. It should also reduce the settlement problems that have tended to accompany privatisations. I am very keen therefore to ensure that TAURUS is introduced as soon as possible. Is there a realistic possibility that the Stock Exchange will be ready with TAURUS before the 1988/89 Companies Bill has received Royal Assent? If there is, do you see a case for introducing a short, non-controversial Bill, perhaps under the Second Reading Committee procedure, early in the 1988/89 session dealing only with TAURUS, which could receive Royal Assent early in 1989?

This issue is now urgent, both because QL will soon be discussing the 1988/89 legislative programme, and

because TAURUS may require stamp duty legislation, which will need to be decided very soon so the Stock Exchange can set up the machinery for collecting the duty.

dti

the department for Enterprise

The Rt. Hon. Lord Young of Graffham
Secretary of State for Trade and Industry

Graham Ross Russell Esq
Deputy Chairman
The Stock Exchange
LONDON
EC2N 1HP

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Date 18 January 1988

Enclosures:
MR GREWE
MR GREWE
MR GREEN
MR NOWINSKI
MR PRIDE
MR WORMAN
ON FILE

Dear G Russell,

Thank you for your letter of 24 December 1987 concerning the postponement of the Financial Markets Bill.

I share your regret that it has not proved possible to find a way of including legislation this session to enable the TAURUS system to go ahead. We did all that we could to do so. But, as you were aware, the legislation did not have a firm place and it is never easy to add to the current programme, particularly when it is as crowded as at present. I recognise the importance of early legislation and still hope that it will be possible to put this through in time for TAURUS to be introduced in the autumn of 1989.

I am sorry that this will not be welcome news but, as I explained to Nicholas Goodison the other day, there really are insurmountable difficulties which prevent earlier legislation.

Yours ever,
Young

the Enterprise

THE INTERNATIONAL STOCK EXCHANGE OF THE UNITED KINGDOM AND THE REPUBLIC OF IRELAND LIMITED

THE STOCK EXCHANGE

GRAHAM ROSS RUSSELL
S. M. YASSUKOVICH
DEPUTY CHAIRMEN

LONDON EC2N 1HP
TELEPHONE: 01-588 2355
TELEX: 886557

24th December, 1987

Dear Secretary of State,

Thank you for your letter of 17th December 1987, addressed to Nicholas Goodison, who is away from the office.

We are very concerned about the consequences of the decision to delay the legislative changes which were to be introduced in the Financial Markets Bill. The failure to introduce the insolvency changes will continue the uncertainty which currently causes concern to the Exchange. As you say it may be possible to repair matters by the introduction of emergency retrospective legislation. However, this is very much second best.

It is most unfortunate that the proposed legislative changes which would enable the introduction of the TAURUS system (vis book entry transfer) are also to be delayed. TAURUS is the single most important step in our plans to bring about a meaningful reduction in the costs of dealing for small investors.

TAURUS will remove the need for the volume of paper which the present system generates and would help brokers process the far greater volume of transactions which the Government's drive to greater share ownership has created. As you will be aware, the Exchange has received adverse comment over the time that the introduction of TAURUS is to take. We have been exploring ways to bring forward the implementation of TAURUS to accommodate what is a pressing need. Your decision to delay the necessary legislation will make it impossible to provide the service to investors any earlier than the Autumn of 1989. The failure to obtain the necessary legislative changes is a matter we may need to cite should any public debate occur.

We very much hope that it may be possible for you to arrange for legislation to enable TAURUS to proceed, even if the Financial Markets Bill is delayed.

Yours Sincerely,

Graham Ross Russell.

Graham Ross Russell

The Rt. Hon. The Lord Young of Graffham,
Secretary of State for Trade and Industry,
1 - 19 Victoria Street,
London, SW1H OET.

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Report of
THE PRESIDENTIAL TASK FORCE
on
MARKET MECHANISMS

(Brady report)

a. PPS
PS/EST
Sir P. Middleton
Sir C. Whitmore
Sir T. Burns
Mr Scholar
Mr Evans
Mr Peretz
Mr Nott
Mr Circus

Sarah
Please get / borrow a copy for me from FRM

Submitted to
The President of the United States,
The Secretary of the Treasury
and
The Chairman of the Federal Reserve Board

31 January 1988

The cost of the Report is available on request: it is an impressive effort.

RW 17/1

Executive Summary

Introduction

From the close of trading Tuesday, October 13, 1987 to the close of trading Monday, October 19, the Dow Jones Industrial Average declined by almost one third, representing a loss in the value of all outstanding United States stocks of approximately $1.0 trillion.

What made this market break extraordinary was the speed with which prices fell, the unprecedented volume of trading and the consequent threat to the financial system.

In response to these events, the President created the Task Force on Market Mechanisms. Its mandate was, in 60 days, to determine what happened and why, and to provide guidance in helping to prevent such a break from happening again.

The Market Break

The precipitous market decline of mid-October was "triggered" by specific events: an unexpectedly high merchandise trade deficit which pushed interest rates to new high levels, and proposed tax legislation which led to the collapse of the stocks of a number of takeover candidates. This initial decline ignited mechanical, price-insensitive selling by a number of institutions employing portfolio insurance strategies and a small number of mutual fund groups reacting to redemptions. The selling by these investors, and the prospect of further selling by them, encouraged a number of aggressive trading-oriented institutions to sell in anticipation of further market declines. These institutions included, in addition to hedge funds, a small number of pension and endowment funds, money management firms and investment banking houses. This selling, in turn, stimulated further reactive selling by portfolio insurers and mutual funds.

Portfolio insurers and other institutions sold in both the stock market and the stock index futures market. Selling pressure in the futures market was transmitted to the stock market by the mechanism of index arbitrage. Throughout the period of the decline, trading volume and price volatility increased dramatically. This trading activity was concentrated in the hands of a surprisingly few institutions. On October 19, sell programs by three portfolio insurers accounted for just under $2 billion in the stock market; in the futures market three portfolio insurers accounted for the equivalent in value of $2.8 billion of stock. Block sales by a few mutual funds accounted for about $900 million of stock sales.

The stock and futures market handled record volume of transactions and had a generally good record of remaining available for trading on October 19 and 20. However, market makers were unable to manage smooth price transitions in the face of overwhelming selling pressure.

Clearing and credit system problems further exacerbated the difficulties of market participants. While no default occurred, the possibility that a clearinghouse or a major investment banking firm might default, or that the banking system would deny required liquidity to the market participants, resulted in certain market makers curtailing their activities and increased investor uncertainty. Timely intervention by the Federal Reserve System provided confidence and liquidity to the markets and financial system.

One Market

Analysis of market behavior during the mid-October break makes clear an important conclusion. From an economic viewpoint, what have been traditionally seen as separate markets—the markets for stocks, stock index futures, and stock options—are in fact one market. Under ordinary circumstances, these marketplaces move sympathetically, linked by financial instruments, trading strategies, market participants and clearing and credit mechanisms.

To a large extent, the problems of mid-October can be traced to the failure of these market segments to act as one. Confronted with the massive selling demands of a limited number of institutions, regulatory and institutional structures designed for separate marketplaces were incapable of effectively responding to "intermarket" pressures. The New York Stock Exchange's ("NYSE") automated transaction system ("DOT"), used by index arbitrageurs to link the two marketplaces, ceased to be useful for arbitrage after midday on October 19. The concern that some clearinghouses and major market participants might fail inhibited intermarket activities of other investors. The futures and stock markets became disengaged, both nearly going into freefall.

The ability of the equity market to absorb the huge selling pressure to which it was subjected in mid-October depended on its liquidity. But liquidity sufficient to absorb the limited selling demands of investors became an illusion of liquidity when confronted by massive selling, as everyone showed up on the same side of the market at once. Ironically, it was this illusion of liquidity which led certain similarly motivated investors, such as portfolio insurers, to adopt strategies which call for liquidity far in excess of what the market could supply.

Regulatory Implications

Because stocks, futures and options constitute one market, there must be in place a regulatory structure designed to be consistent with this economic reality. The October market break illustrates that regulatory changes, derived from the one-market concept, are necessary both to reduce the possibility of destructive market breaks and to deal effectively with such episodes should they occur. The guiding objective should be to enhance the integrity and competitiveness of U.S. financial markets.

Analysis of the October market break demonstrates that one agency must have the authority to coordinate a few critical intermarket issues cutting across market segments and affecting the entire financial system; to monitor activities of all market segments; and to mediate concerns across marketplaces. The specific issues which have an impact across marketplaces and throughout the financial system include: clearing and credit mechanisms; margin requirements; circuit breaker mechanisms, such as price limits and trading halts; and information systems for monitoring activities across marketplaces.

The single agency required to coordinate cross-marketplace issues must have broad and deep expertise in the interaction of the stock, stock option and stock index futures marketplaces, as well as in all financial markets, domestic and global. It must have broad expertise in the financial system as a whole.

The Task Force compared these requirements with possible alternative regulatory structures, including: existing self-regulatory organizations, such as the exchanges; existing government regulatory agencies, namely the Securities and Exchange Commission and the Commodity Futures Trading Commission; the Department of the Treasury; the Federal Reserve Board; a combination of two or more of these; and a new regulatory body.

Conclusion

Our understanding of these events leads directly to our recommendations. To help prevent a repetition of the events of mid-October and to provide an effective and coordinated response in the face of market disorder, we recommend:

- One agency should coordinate the few, but critical, regulatory issues which have an impact across the related market segments and throughout the financial system.
- Clearing systems should be unified across marketplaces to reduce financial risk.
- Margins should be made consistent across marketplaces to control speculation and financial leverage.
- Circuit breaker mechanisms (such as price limits and coordinated trading halts) should be formulated and implemented to protect the market system.
- Information systems should be established to monitor transactions and conditions in related markets.

The single agency must have expertise in the interaction of markets—not simply experience in regulating distinct market segments. It must have a broad perspective on the financial system as a whole, both domestic and foreign, as well as independence and responsiveness.

The Task Force had neither the time nor the mandate to consider the full range of issues necessary to support a definitive recommendation on the choice of agency to assume the required role. However, the weight of the evidence suggests that the Federal Reserve is well qualified to fill that role.

Other Issues

Certain other issues were discussed by the Task Force without reaching definitive conclusions. The Task Force identified the following issues as warranting review by the appropriate authorities:

- Short selling—There are restrictions on short selling in the stock market, but not in the futures or options markets. Linkages, such as index arbitrarge, among these markets may operate to incapacitate the short selling restriction. This issue should be reviewed from an intermarket perspective.
- Customer vs. Proprietary Trading—Under certain circumstances, broker-dealers and futures market makers can act as principal for their own account as well as execute customer orders. Potential problems posed by the opportunity to trade in anticipation of customer orders in different marketplaces should also be reviewed from an intermarket perspective.
- NYSE Specialists—The adequacy of specialist capital and specialist performance in meeting their responsibility to maintain a fair and orderly market are issues raised by the October market experience.
- NYSE Order Imbalances—When there are serious imbalances of orders, consideration should be given to favoring public customers in execution over institutional and other proprietary orders through the DOT system and to making the specialist book public to help attract the other side of the imbalance.

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THE PRESIDENTIAL TASK FORCE
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(Brady report)

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PS/EST
Sr. P. Middleton
Sr C. Clarke
Sir T. Burns
Mr Scholar
Mr Evans
Mr Perez
Mr Nett
Mr Circle

Submitted to
The President of the United States,
The Secretary of the Treasury
and
The Chairman of the Federal Reserve Board

The cost of the Report is available on request.
It is an impressive effort.

January 1988

Rh 17/1

Chapter One

Introduction

From the close of trading on Tuesday, October 13, 1987, to the close of trading on October 19, 1987, the Dow Jones Industrial Average ("Dow") fell 769 points or 31 percent (see Figure 1). In those four days of trading, the value of all outstanding U.S. stocks decreased by almost $1.0 trillion. On October 19, 1987, alone, the Dow fell by 508 points or 22.6 percent. Since the early 1920's, only the drop of 12.8 percent in the Dow on October 28, 1929 and the fall of 11.7 percent the following day, which together constituted the Crash of 1929, have approached the October 19 decline in magnitude.

The significance of this decline lies in the role that the stock market plays in a modern industrial economy, both as a harbinger and a facilitator of economic activity. Stock price levels can have an important effect on the confidence and, hence, the behavior of both businesses and households. Further, equity markets are a primary means by which businesses and industries raise capital to finance growth and provide jobs. Gross sales of newly issued common stock increased substantially over the course of the 1982 to 1987 bull market, reaching $56.3 billion in 1986 and $27 billion in the first six months of 1987. However, the importance of stock sales is greater than simply the amount of funds raised. New equity capital and public equity markets are essential to financing innovative business ventures which are a primary engine of the nation's economic growth.

Moreover, publicly traded equities are a repository of a significant fraction of U.S. household wealth. Households directly own about 60 percent of all U.S. publicly owned common stock, which was worth approximately $2.25 trillion before the October market decline. Households hold another $210 billion of common stock through mutual funds and $740 billion through pension funds. Thus, in the early fall of 1987, the stock market accounted for approximately $3.2 trillion worth of household wealth.

Equity markets are also inextricably tied to the wider financial system through the structure of banks and other financial institutions. Given the importance of equity markets to the economy and to the public, effectively structured and functioning equity markets are critical.

Consequently, in response to October's extraordinary events, the President created a Task Force on Market Mechanisms, the purpose of which was to:

> . . . review relevant analyses of the current and long-term financial condition of the Nation's securities markets; identify problems that may threaten the short-term liquidity or long-term solvency of such markets; analyze potential solutions to such problems that will both assure the continued functioning of free, fair, and competitive securities markets and maintain investor confidence in such markets; and provide appropriate recommendations to the President, to the Secretary of the Treasury, and to the Chairman of the Board of Governors of the Federal Reserve System.

What made the October market break extraordinary was the speed with which prices fell, the unprecedented volume of trading and the consequent dislocations of the financial markets. Thus, whatever the causes of the original downward pressure on the equity market, the mandate of the Task Force was to focus on those factors which transformed this downward pressure into the alarming events of the stock market decline and to recommend measures to

ensure, as far as possible, that future market fluctuations are not of the extreme and potentially destructive nature witnessed in October 1987.

Fundamental causes of the recent market decline should not, of course, be ignored. To the extent that existing imbalances in the budget, foreign transactions, savings, corporate asset positions and other fundamental factors are perceived to be problems, they merit attention.

The events of October demonstrated an unusual frailty in the markets. Only 5 percent of the total shares of publicly traded stock in the U.S. changed hands during this period, but it resulted in the loss in stock value of $1 trillion. That such a relatively small transaction volume can produce such a large loss in value over such a short time span suggests the importance of determining the extent to which market mechanisms themselves were an important factor in the October market break. The work of the Task Force, therefore, focused on the individual marketplaces and the interrelationship of existing market mechanisms, including the instruments traded, the strategies employed and the regulatory structures.

* * *

The Task Force's findings and conclusions are based significantly on the primary transaction data and information that we accumulated. Recognizing the importance of determining as much as possible about each transaction, the Task Force spent much of its time gathering and then analyzing transactions on the New York Stock Exchange ("NYSE"), Chicago Mercantile Exchange ("CME"), Chicago Board of Trade ("CBOT"), American Stock Exchange ("Amex") and the Chicago Board Options Exchange ("CBOE").

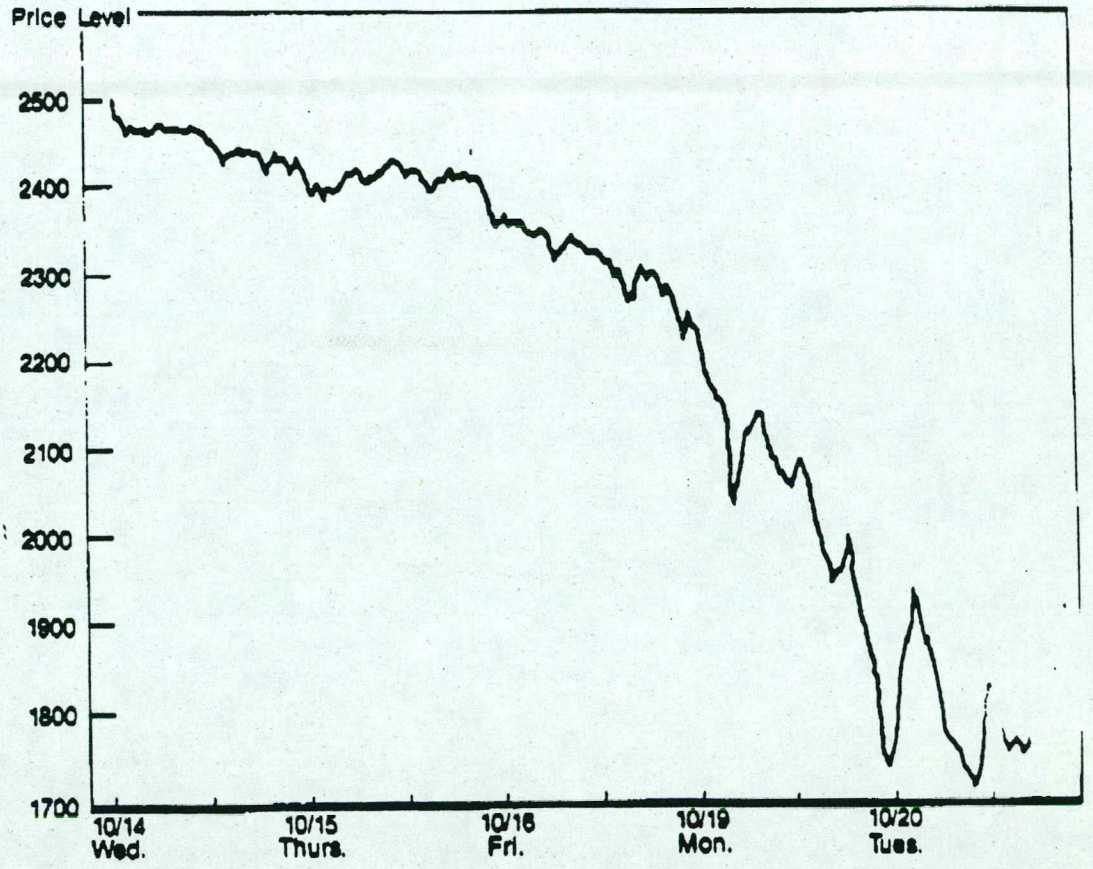
As a vehicle for expanding on, and cross-referencing, this exchange data, the Task Force analyzed information on transactions supplied to the Securities and Exchange Commission ("SEC") and the Commodity Futures Trading Commission ("CFTC"). In addition, we received information directly from certain major investment banks and institutional investors.

Finally, the Task Force spoke in person with hundreds of market participants in order to understand better their perspectives on individual transactions and all the events of the October 1987 decline.

Figure 1

DOW JONES INDUSTRIAL ONE MINUTE CHART

October 14, 1987 to October 20, 1987



Chapter Two

Instruments, Markets, Regulation and Trading Strategies

This chapter is designed to serve as a brief introductory guide for readers less familiar with the instruments, marketplaces and trading strategies important to understanding the events of mid-October. A more complete discussion is presented in Study VI.

Stocks, Futures Contracts and Options Contracts

Shares of stock are claims of ownership in corporations. The price of a stock in effectively operating stock markets depends largely on the current performance and future earnings prospects of a corporation. Futures contracts and options contracts are not corporate ownership claims. They are "derivative" instruments whose value depends primarily on the underlying price of the stock or portfolio of stocks from which they are derived. The most heavily traded equity-related futures and options contracts are based upon certain standardized portfolios of stock such as the Standard and Poor's 500 Stock Index ("S&P 500"), the Standard and Poor's 100 Stock Index ("S&P 100") and the Major Market Index of 20 stocks ("MMI").

Exchanges and Market Making

Stocks are traded on the New York Stock Exchange and American Stock Exchange, as well as on several other exchanges throughout the country. Other stocks are traded in the over-the-counter ("OTC") market, a dealer market connected by computers and telephones.

The S&P 500 futures contract is traded on the Chicago Mercantile Exchange, and the MMI futures contract is traded on the Chicago Board of Trade. The preponderance of the daily volume of index futures trading takes place on the CME. Although the value of open interest in the futures contracts is only a small fraction of the value of NYSE stocks, the value of the stocks represented by the volume of futures contracts traded on the CME daily is typically about twice the value of stocks traded on the NYSE daily.

Options contracts on the S&P 100 are traded on the Chicago Board Options Exchange. The Amex trades an option on the MMI. Options whose value is related to individual stocks are also traded on various exchanges.

A specialist system is used by the various stock exchanges for exchange-listed stocks. Under the specialist system, a single dealer is given the right to make the market in a specific stock or option on the exchange. In return, the specialist assumes the responsibility to make an "orderly" market by buying and selling from inventory. In the competitive market maker system, competing dealers set the price of an options or futures contract in an auction process. A competitive market maker system is used by the CBOE for options, and by the CME and the CBOT for futures. The OTC also uses a competing dealer system to make markets. A hybrid system employing both specialists and competing market makers is used for options sponsored by the stock exchanges.

Regulation

The stock, futures and options exchanges organize, manage, promote and oversee the individual stock and derivative contract markets. They set and enforce rules regarding trading practices, monitor the financial resources and obligations of participants and supervise the settlement of transactions.

There is a system of federal regulatory oversight which requires or prohibits particular rules and practices, approves rule changes, and audits the exchanges' trading and financial surveillance. The Securities and Exchange Commission has responsibility for stocks and options; the Commodity Futures Trading Commission oversees futures.

Margin

Customers of futures commission merchants and broker-dealers in stock markets must post collateral, called "margin", consisting of cash and securities, against their obligations. These obligations are twofold. First, they are loans from a broker-dealer to purchase stock. Second, they are obligations created by a short sale of stock, the purchase or sale of a futures contract and the sale of an options contract.

The equity balance of a customer's margin account, equal to the difference between the market value of securities and the amount of the loan or other obligation, is calculated each day. The equity value must be greater than the margin requirement; otherwise the broker-dealer may call for more margin or sell the customer's positions.

The Federal Reserve has final authority for setting initial margin requirements for stocks and options. The individual commodity exchanges have the authority to set margins in the futures contracts traded on their floors.

Clearing

Trades executed on an exchange are guaranteed by a "clearinghouse," whose performance is in turn guaranteed to varying degrees by the clearing members (broker-dealers or futures commission merchants) of that exchange. Most U.S. stock exchanges clear their transactions through a single stock clearinghouse. Similarly, all U.S. options exchanges clear through a single options clearinghouse. In contrast, each of the largest futures exchanges maintains its own clearinghouse.

Trading Strategies

The price of an index futures contract and the price of the stock index portfolio underlying it are directly related. Normally, the price of a futures contract exceeds the price of the underlying portfolio by an amount reflecting the "cost of carry," which relates to the difference between the Treasury bill rate and the dividend yield on the portfolio.

An index arbitrageur attempts to profit when the price difference is abnormal, either by simultaneously buying futures contracts and selling the index portfolio of stocks or by doing the reverse. When the futures price is at a discount, the arbitrageur engages in index substitution by selling an index portfolio of stocks and replacing it with futures contracts. This is typically done by a pension fund which owns an indexed portfolio of stocks. In executing this arbitrage, the institution takes on whatever greater credit risk there is in owning the futures contract rather than the stocks themselves. When the futures contract is at a premium, the arbitrageur may execute a "synthetic cash" transaction, buying the stock portfolio and selling futures. Typically, a corporation holding short term money market investments would perform this arbitrage to increase its yield.

There are also a number of non-arbitrage trading strategies which involve stocks and futures contracts. First, when trading-oriented investors want to trade on the direction of the market as a whole, they often buy or sell index futures because futures transactions can be executed more quickly and cheaply than transactions involving a diversified portfolio of stocks. Lower transaction costs and lower margin requirements make this possible. Second, longer term investors often find it faster and initially cheaper to initiate portfolio position changes through the futures market. Eventually, the futures position is replaced with stocks. Third, block traders, exchange specialists and investment bankers marketing new stock issues can use index futures to hedge their positions.

Other strategies are designed to react mechanically to market movements by selling in a falling market and buying in a rising market. One such strategy, "portfolio insurance," is designed to allow institutional investors to participate in a rising market yet protect their portfolio as the market falls. Using computer-based models derived from stock options analysis, portfolio insurance vendors compute optimal stock-to-cash ratios at various stock market price levels. But rather than buying and selling stocks as the market moves, most portfolio insurers adjust the stock-to-cash ratio by trading index futures. Indeed, several major portfolio insurance vendors have been authorized to trade only futures and have no access to their clients' stock portfolios. Some option hedging strategies employed by options traders use the same method of buying futures as the market rises and selling futures as the markets falls.

Underlying many of these strategies is the ability to use stock index futures to trade the entire "stock market," as if it were a single commodity. Futures contracts make it possible to do this quickly, efficiently and cheaply. However, to the extent they do this, traders and investors treat the stock market as if it were a single commodity rather than a collection of individual stocks.

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Chapter Three

The Bull Market

All major stock markets began an impressive period of growth in 1982. Spurred by the economic turnaround, the growth in corporate earnings, the reduction in inflation and the associated fall in interest rates, the Dow rose from 777 to 1,896 between August 1982 and December 1986 (see Figure 2). Other factors contributing to this dramatic bull market included: continuing deregulation of the financial markets; tax incentives for equity investing; stock retirements arising from mergers, leveraged buyouts and share repurchase programs; and an increasing tendency to include "takeover premiums" in the valuation of a large number of stocks.

Despite the dramatic rise in the market, stock valuation at the end of 1986 was not out of line with levels achieved in past periods. (Figures 3 and 4 show two common stock valuation measures, the price-to-earnings ratio and the ratio of price-to-book value per share, for the stocks in the S&P 500 Index from 1950 to 1987.)

1987

Stocks in the U.S. continued to appreciate rapidly during the first eight months of 1987, despite rapidly increasing interest rates (see Figure 5). When the Dow reached its peak of 2,722 in August, stocks were valued at levels which challenged historical precedent and fundamental justification (see Figures 3 to 6). Factors which contributed to this final rise included, in addition to those listed earlier, increased foreign investment in U.S. equities and growing investment in common stock mutual funds.

The rapid rise in the popularity of portfolio insurance strategies also contributed to the market's rise. Pension fund managers adopting these strategies typically increased the funds' risk exposure by investing more heavily in common stock during this rising market. The rationale was that portfolio insurance would cushion the impact of a market break by allowing them to shift quickly out of stocks.

During this period, the OTC market also advanced rapidly, and institutional participation and trading volume rose. The OTC and NYSE increasingly moved in parallel, with relative price levels in one matching those in the other.

Moreover, volatility in all the U.S. equity markets increased somewhat during this period.[1] However, prior to October, it was not substantially high by historical standards and increases in U.S. stock market volatility were comparable to increases in volatility in foreign markets.

International Equity Markets

Foreign stock exchanges enjoyed bull markets similar to the U.S. during this period (see Figures 7 and 8). As in the U.S., stock valuation in these markets by 1987 began to rise above levels apparently justified by historical precedent or economic factors (see Figures 9 and 10). In Japan, for example, stocks were selling at a ratio of 70 times earnings in October 1987, more than double the price-to-earnings ratio in the beginning of 1986.

Aided by significantly improved computer and communications technology, cross-border equity investment increased rapidly during this period. The

[1] See Study II for a more detailed analysis of volatility levels in U.S. stock markets.

communications networks of four key data providers alone cover over 100,000 equities, connect over 110 exchanges and include 300,000 terminals in over 110 countries. In the first nine months of 1987 alone, Japanese investment in U.S. equities increased by about $15 billion. As cross-border investment grew, so did U.S. investors' sensitivity to foreign common stock performance. Investors made comparisons of valuations in different countries, often using higher valuations in other countries as justification for investing in lower valued markets. Consequently, a process of ratcheting up among worldwide stock markets began to develop. In the midst of this globalization of equity investment, trading volume on U.S. markets continued to dominate worldwide trading. Trading on U.S. markets tended to lead other markets around the world.

This economic and financial panorama was the backdrop to the October market break in the U.S.

Figure 2

U.S. MARKET

S&P 500 Index

January 1982 to November 1987

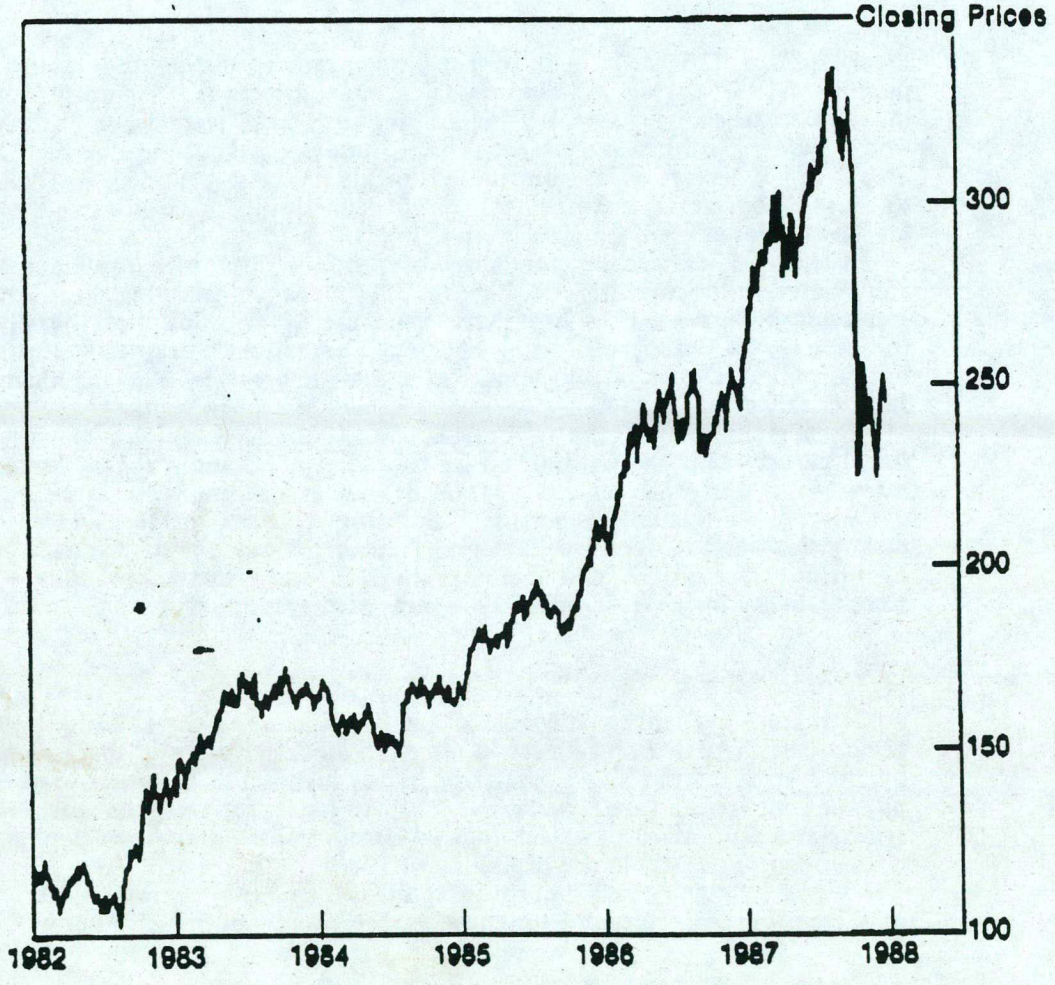


Figure 3

U.S. MARKET

Price/Earnings Multiple vs Long Term Govt. Bond Yield

January 1960 to November 1987

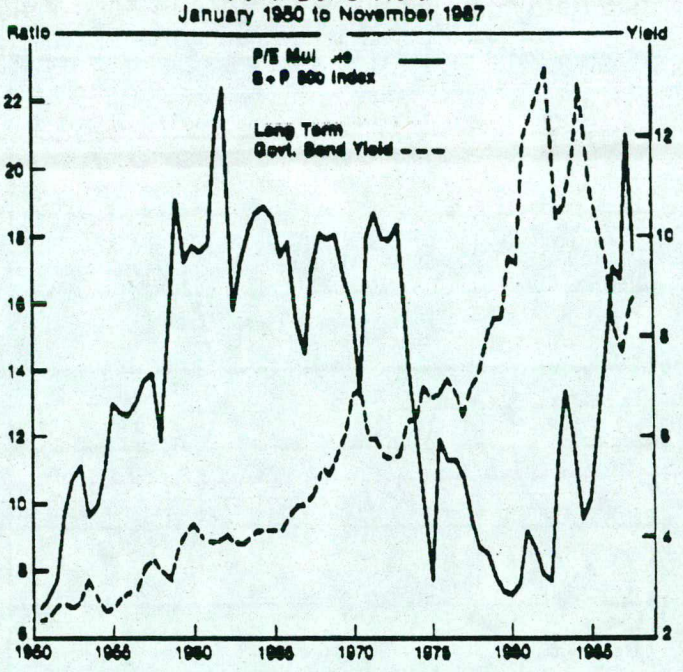


Figure 4

U.S. MARKET

S&P 400 Price-to-Book Ratio

January 1960 to November 1987

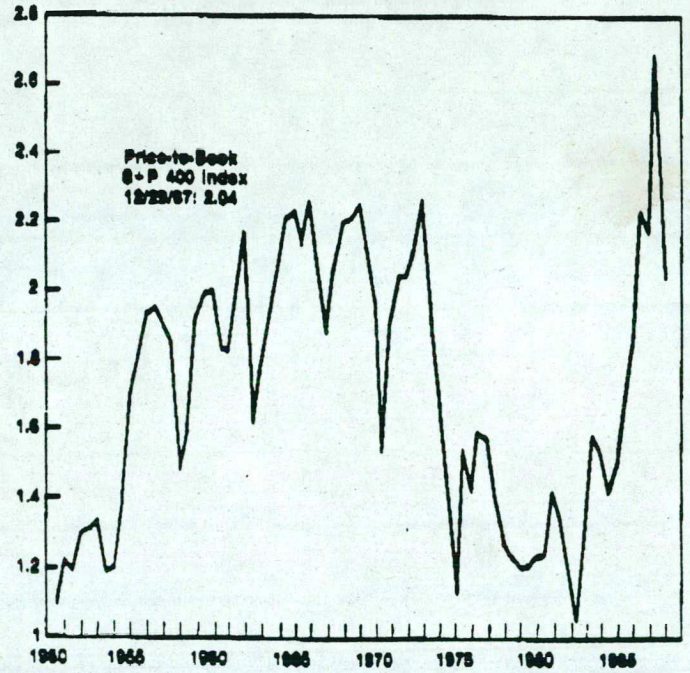


Figure 5

U.S. MARKET

Price Earnings Multiple vs Long Term Bond Yield

January 1982 to November 1987

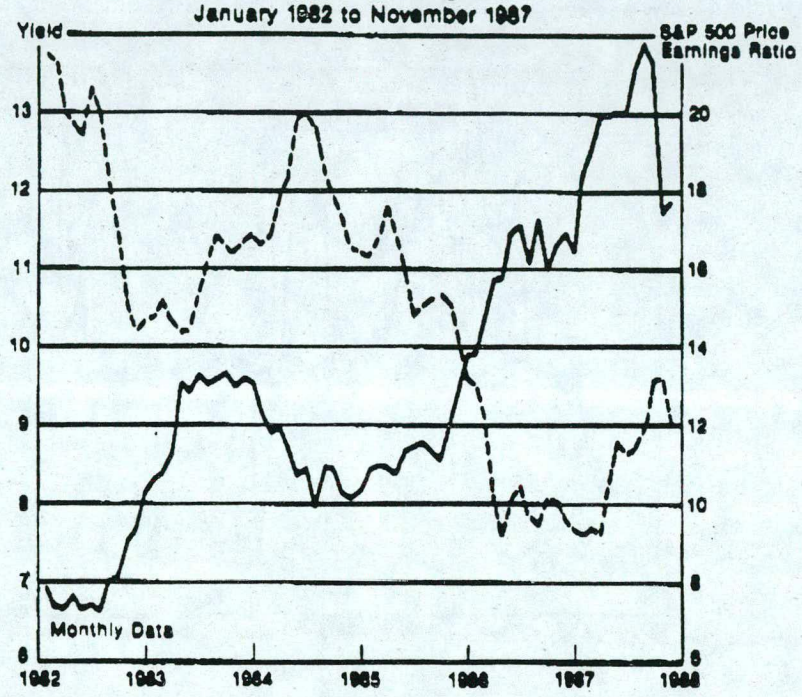


Figure 6

RATIO: BOND YIELD/S & P 500 YIELD

January 1947 to December 1987

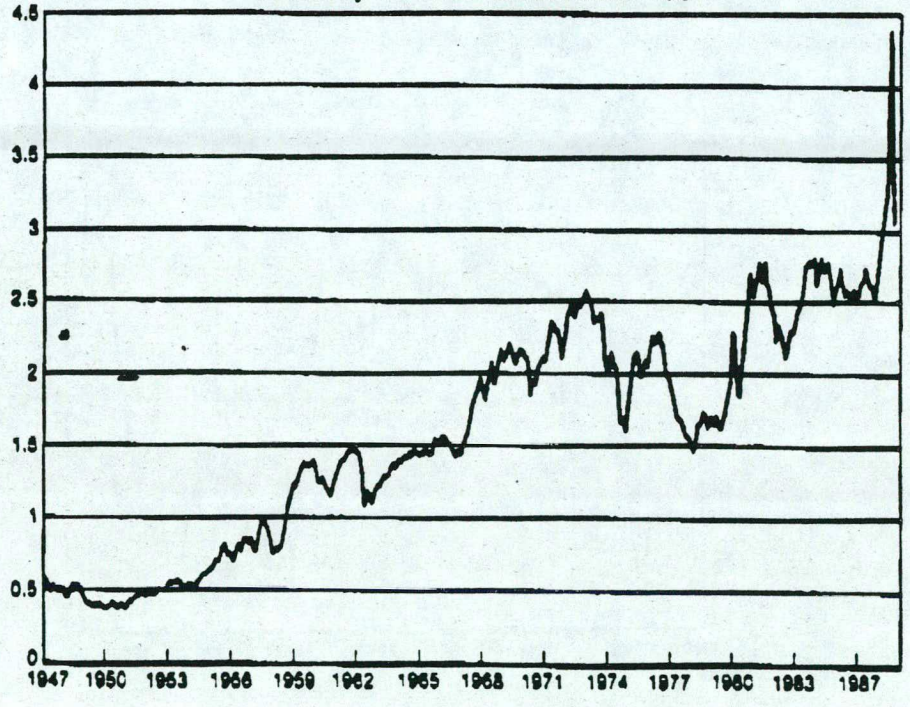


Figure 7

JAPAN MARKET

Tokyo SE New Index

January 1982 to December 1987

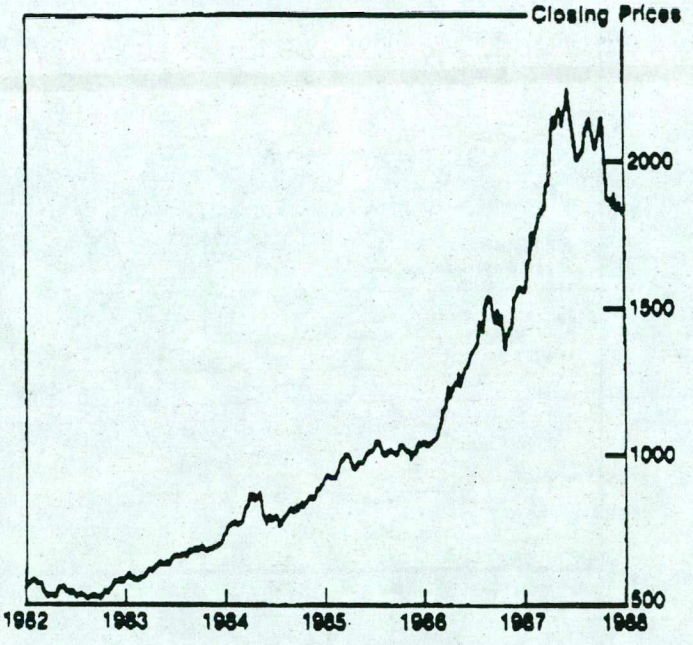


Figure 8

LONDON MARKET

FTA All Share Index

January 1982 to December 1987

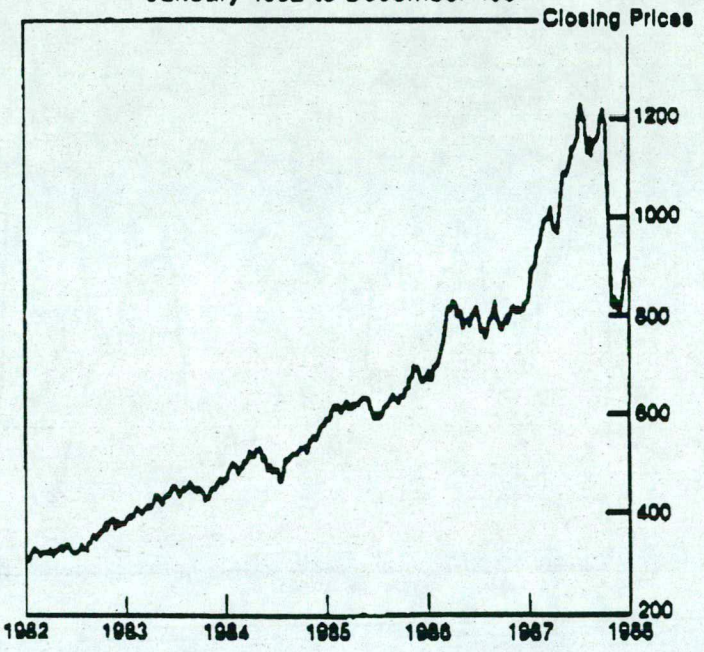


Figure 9

JAPAN MARKET

Price/Earnings Multiple vs Long Term Govt. Bond Yield

January 1982 to November 1987

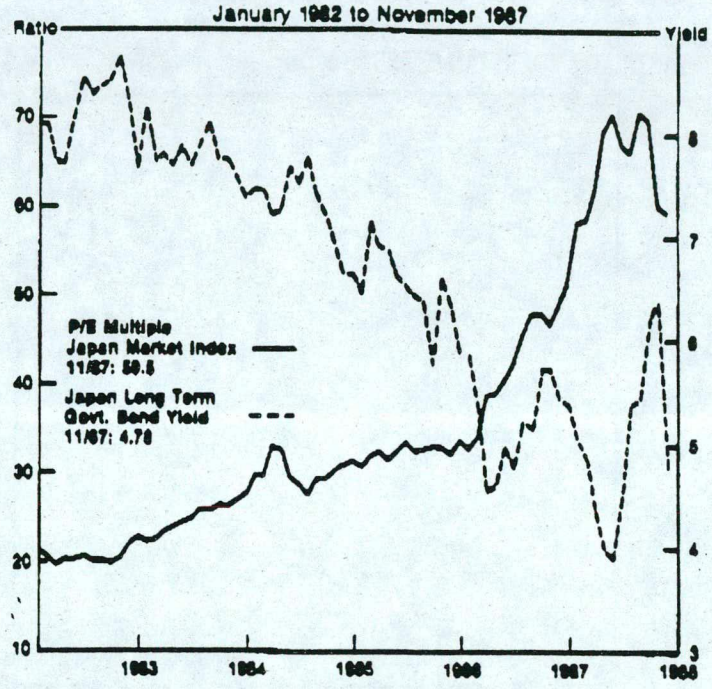
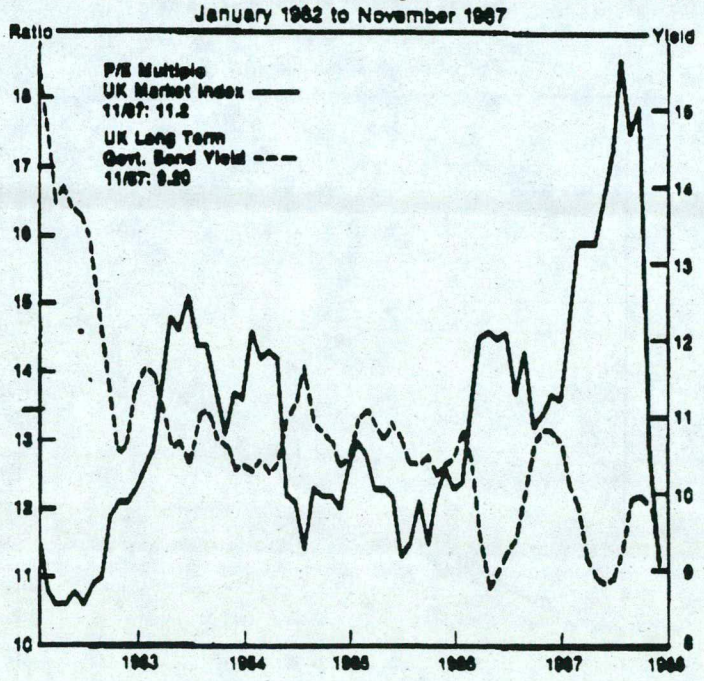


Figure 10

UK MARKET

Price/Earnings Multiple vs Long Term Govt. Bond Yield

January 1982 to November 1987



Chapter Four

The Market Break

Introduction

On Wednesday morning, October 14, 1987, the U.S. equity market began the most severe one-week decline in its history. The Dow stood at over 2,500 on Wednesday morning. By noon on Tuesday of the next week, it was just above 1,700, a decline of almost one third. Worse still, at the same time on Tuesday, the S&P 500 futures contract would imply a Dow level near 1,400.

This precipitous decline began with several "triggers," which ignited mechanical, price-insensitive selling by a number of institutions following portfolio insurance strategies and a small number of mutual fund groups. The selling by these investors, and the prospect of further selling by them, encouraged a number of aggressive trading-oriented institutions to sell in anticipation of further declines. These aggressive trading-oriented institutions included, in addition to hedge funds, a small number of pension and endowment funds, money management firms and investment banking houses. This selling in turn stimulated further reactive selling by portfolio insurers and mutual funds. Selling pressure in the futures market was transmitted to the stock market by the mechanism of index arbitrage. Throughout the period, trading volume and price volatility increased dramatically. This may suggest that a broad range of investors all decided to reduce their positions in equities. In reality, a limited number of investors played the dominant role during this tumultuous period.

The Days Before the Break (October 14 to 16)

Wednesday, October 14. The stock market's break began with two events which contributed to a revaluation of stock prices and triggered the reactive selling which would exacerbate the decline the following week. At 8:30 a.m., Eastern Time,[1] the government announced that the merchandise trade deficit for August was $15.7 billion, approximately $1.5 billion above the figure expected by the financial markets. Within seconds, traders in the foreign exchange markets sold dollars in the belief that the value of the dollar would have to fall further before the deficit could narrow. The German Deutschemark and the Japanese yen rose dramatically in value. Treasury bond traders, fearing that a weakening dollar could both discourage international investment in U.S. securities and stimulate domestic inflation, sold on the London market and on the U.S. bond market, when it opened. The Treasury's bellwether 30-year bond began to trade above a 10 percent yield for the first time in two years. Equity returns at current levels became even less attractive compared to returns on bonds.

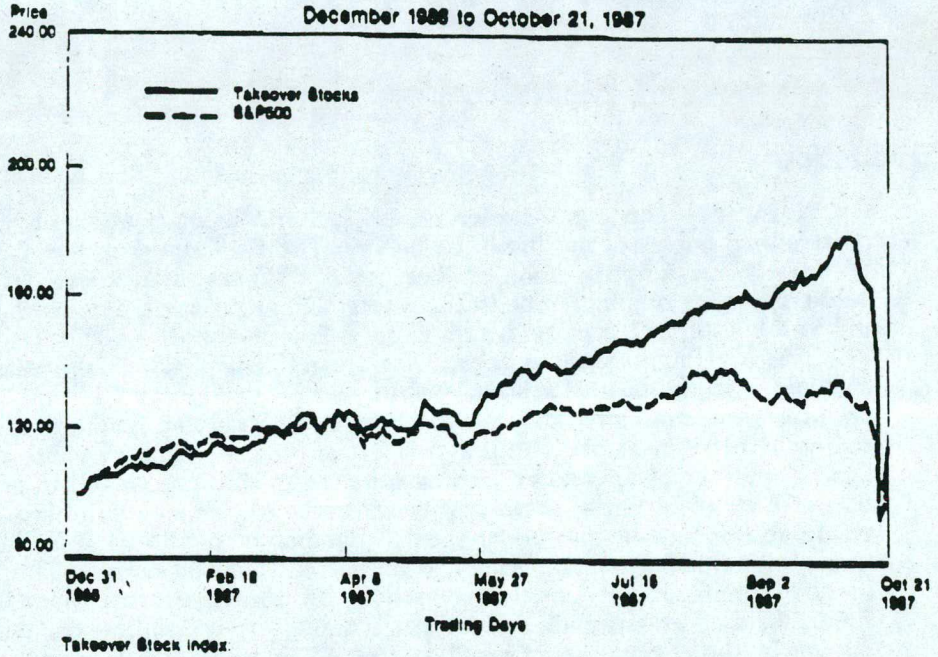
The second event was the announcement early Wednesday that members of the House Ways and Means Committee were filing legislation to eliminate tax benefits associated with the financing of corporate takeovers. While rumors of the legislation had been circulating on Wall Street for several weeks, its actual announcement had a galvanizing effect on investors, particularly risk arbitrageurs, who specialize in buying shares of takeover candidates. Figures 11 and 12 show the performance of a small number of takeover

[1] Throughout the Report, all times are Eastern Time.

Figure 11

TAKEOVER STOCK INDEX VS S&P 500 INDEX NORMALIZED PRICE SERIES

December 1986 to October 21, 1987



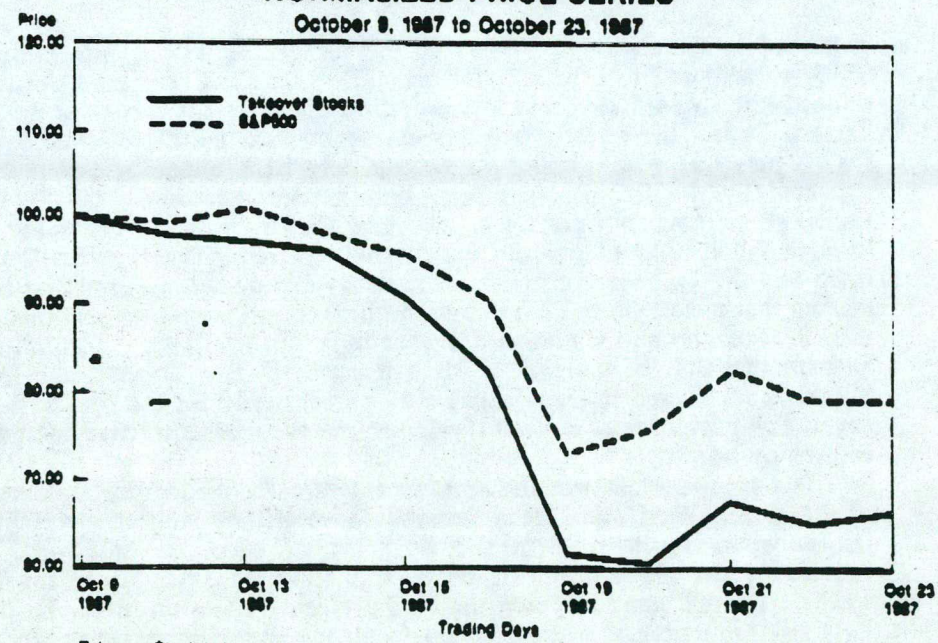
Takeover Stock Index:

Allegis, USG Corp., Tennaco, Gillette, Newmont Mining, GAF Corp., Irving Bank, Kansas City Southern Industries, Telex, Santa Fe Southern Pacific, Dayton Hudson

Figure 12

TAKEOVER STOCK INDEX VS S&P 500 INDEX NORMALIZED PRICE SERIES

October 9, 1987 to October 23, 1987



Takeover Stock Index:

Allegis, USG Corp., Tennaco, Gillette, Newmont Mining, GAF Corp., Irving Bank, Kansas City Southern Industries, Telex, Santa Fe Southern Pacific, Dayton Hudson

candidates compared to that of the S&P 500 index. As risk arbitrageurs came to appreciate the seriousness of the legislative initiative, they began to liquidate their positions, collapsing the prices of takeover shares. These stocks had led the bull market up and now, during the week of October 14 to October 20, they would begin to lead it back down again.

In response to these events, the equity market declined immediately on Wednesday's opening. The S&P 500 futures contract fell sharply as trading-oriented investors sold. This was followed by large block sales of individual stocks on the NYSE as institutions joined the selling. The Dow dropped 44 points in the first half hour. During this period, index arbitrage program sales through the NYSE's Designated Order Turnaround ("DOT") automated execution system, totaled almost $200 million, which was 18 percent of volume, double the normal level.[8]

Index arbitrageurs attempt to profit from price differences in futures and stocks either by simultaneously buying futures and selling baskets of stock or vice versa. This arbitrage activity usually has the effect of eliminating the price differences. It also transfers buying or selling pressure between the futures market and the stock market.

The morning decline was followed by another 45 point decline between 12:15 p.m. and 1:15 p.m. This midday decline was the result mainly of selling in the futures market by portfolio insurers (see Figure 13) and, then, the transmission of this selling activity back into the stock market by the actions of index arbitrageurs who bought futures and sold stocks (see Figures 14 and 15). Index arbitrage activity during this hour was $300 million, almost 25 percent of volume.

Portfolio insurance, a strategy using computer-based models, computes optimal stock-cash ratios at various market price levels. Rather than buying and selling stocks as the market moves, most portfolio insurers adjust the stock-cash ratio within their clients' investment portfolios by trading in futures. Indeed, several major portfolio insurance vendors are authorized to trade only futures, and have no access to their clients' stock portfolios.

At the end of Wednesday there was a sell-off by trading-oriented institutions. Institutional sellers moved large blocks in the stock market and sold futures as well. In the last half hour, the Dow fell 17 points. Index arbitrage sales were $140 million, 15 percent of volume.

For the day, the Dow was down an historic 95 points on volume of 207 million shares. Of this volume, index arbitrage sales through DOT were $1.4 billion, 17 percent of volume or twice the normal level. The 20 largest NYSE member firms sold as principal $689 million of stock. Trading-oriented investors in the futures market were net sellers of about $500 million. Portfolio insurance selling was heavy, particularly in early and mid-afternoon.

[8] The data, on which the analysis contained in the Report and Studies is based, are taken primarily from databases containing individual transactions on the NYSE, CME (for stock index futures), and the Amex and CBOE (for stock index options). For NYSE stocks, the staff of the Task Force assembled databases showing transactions for broker-dealers, for all large institutions clearing trades through the Depository Trust Company, and for all trades done through the DOT system. For the CME, Amex and CBOE, the staff assembled databases containing all transactions by customer and end-of-day positions of all large traders. As a basis for verifying and elaborating on the information contained in these databases, the staff had access to information on a sample of transactions supplied to the SEC and CFTC by large institutional investors, broker-dealers, and the various exchanges and supplied to the Task Force by certain large institutional investors. In addition, the Task Force spoke in person with many market participants and representatives of the exchanges and regulatory bodies.

Figure 13

S & P INDEX AND FUTURES CONTRACT

Wednesday, October 14, 1987

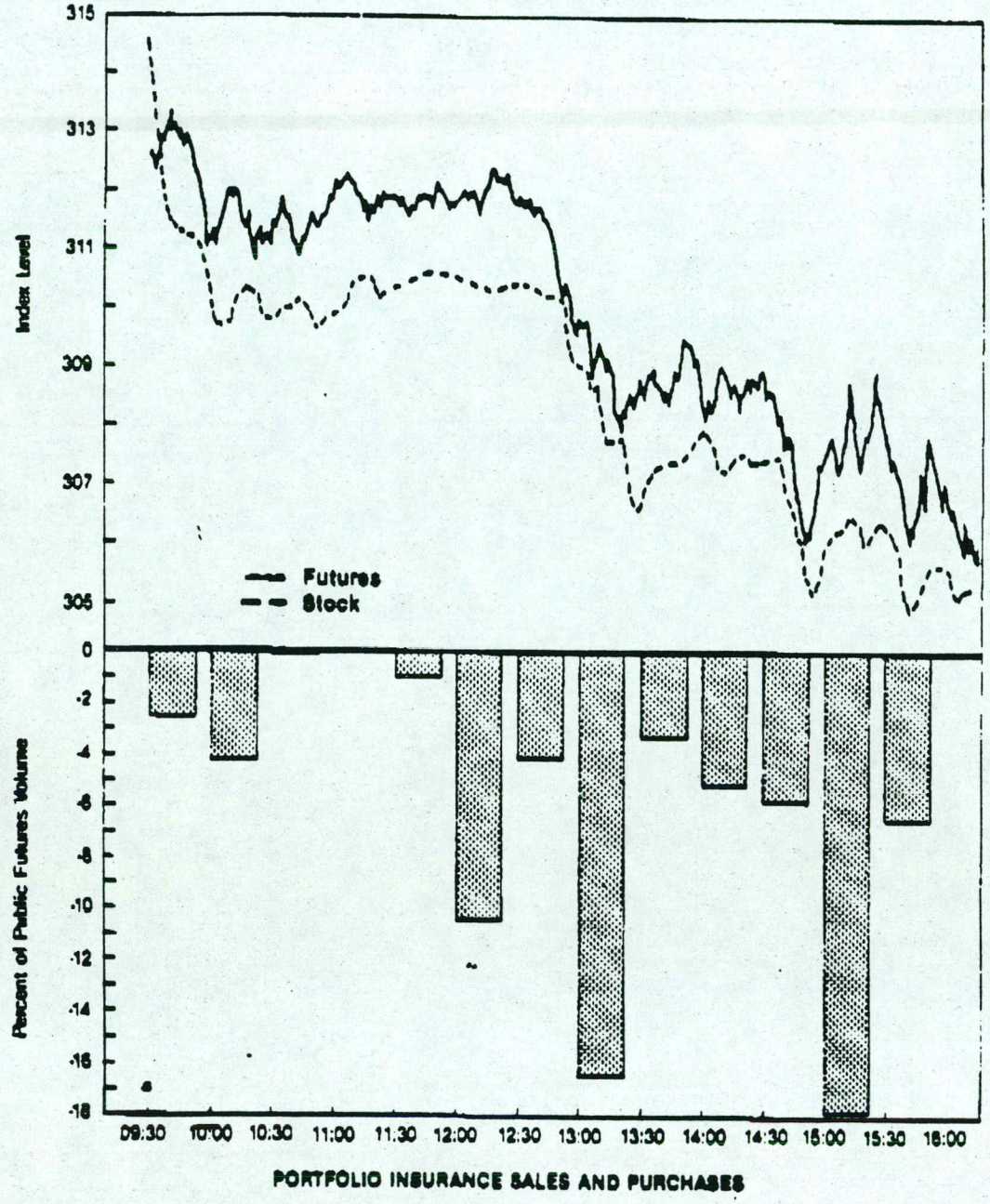


Figure 14

DOW JONES INDUSTRIAL ONE MINUTE CHART

Wednesday, October 14, 1987

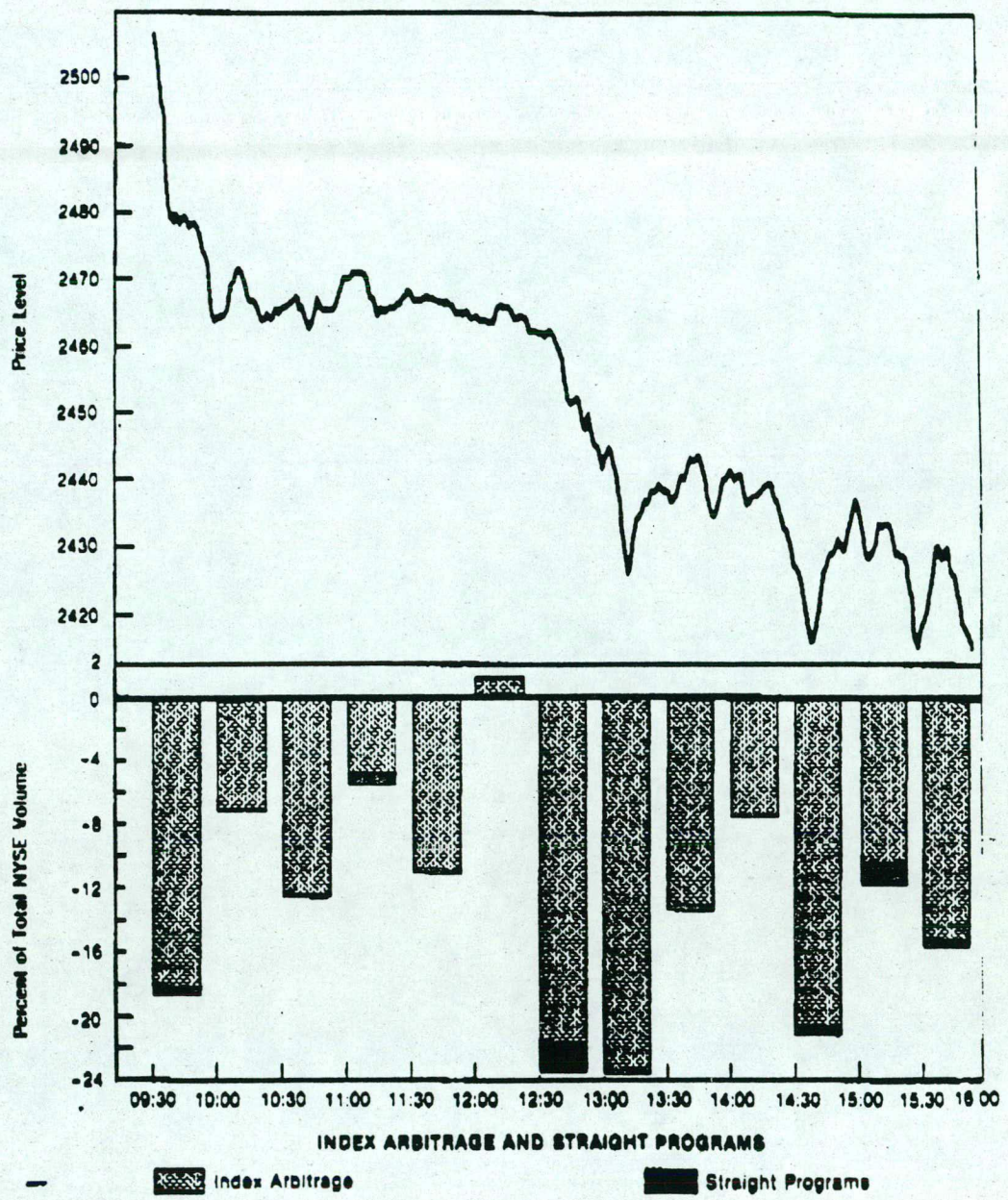


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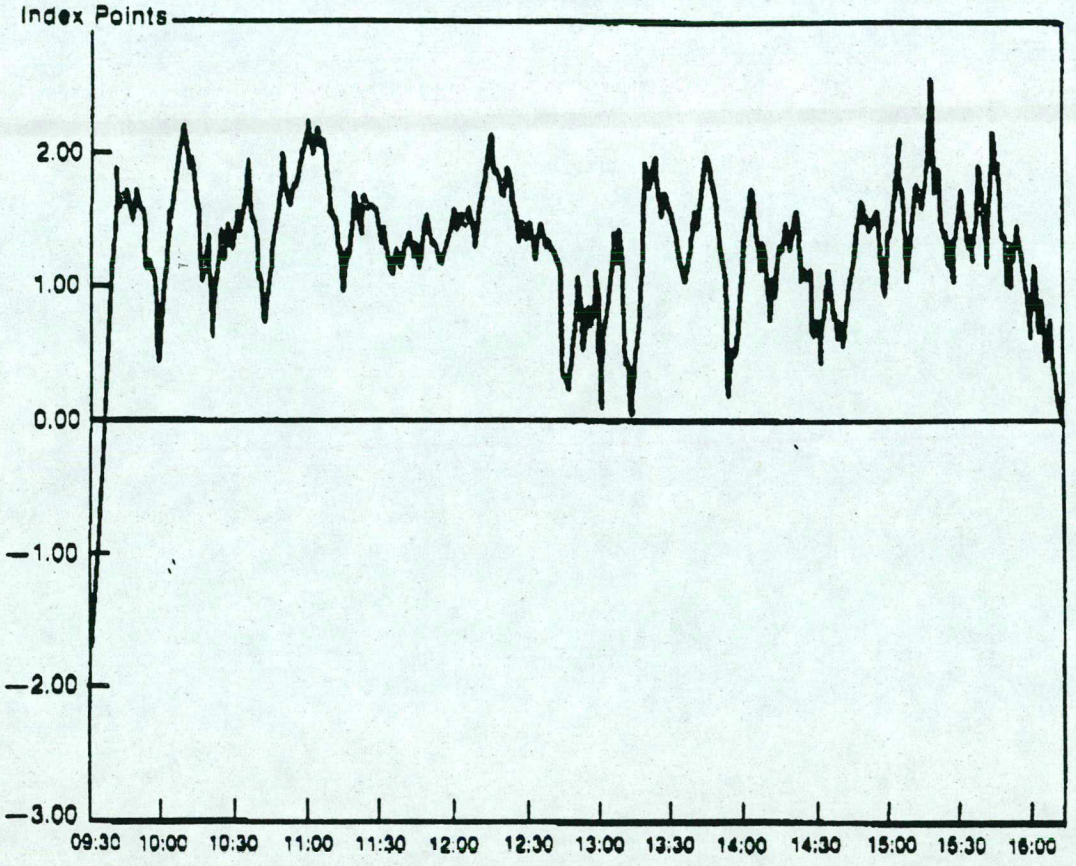
Figure 15

S & P INDEX AND FUTURES CONTRACT SPREAD

Wednesday, October 14, 1987



Thursday, October 15. Selling in Tokyo and London overnight continued the pattern seen in New York and Chicago on Wednesday. When the U.S. markets opened, they were greeted by heavy selling from portfolio insurers. During the first half hour, this group sold approximately 2,500 futures contracts ($380 million), more than 26 percent of public volume. The Dow opened 20 points down on heavy volume of 48 million shares in the first half hour, with approximately 60 percent of the trading in large blocks of 10,000 shares or more. Even with the opening drop in the Dow, the futures went to a discount.

Despite the opening, the Dow recovered during the day and was down only four points at 3:30 p.m. In the last 30 minutes of trading, however, it fell another 53 points to close down 57 points for the day. This sharp decline on heavy volume so late in the day bewildered investors. Broad-based selling by futures market participants, including portfolio insurers, led the fall, and index arbitrage activity quickly followed to bring the stock market into line (see Figures 16 to 18). Index arbitrage amounted to almost $175 million in stock sales on the NYSE, and straight selling of stock baskets amounted to another $100 million; together the two trading strategies accounted for approximately one quarter of the last half hour's volume on the NYSE. Throughout the day, a concentration of trading activity was evident. Seven aggressive trading institutions sold a total of just over $800 million of stocks, about 9 percent of NYSE volume.

Figure 16

S & P INDEX AND FUTURES CONTRACT

Thursday, October 15,1987

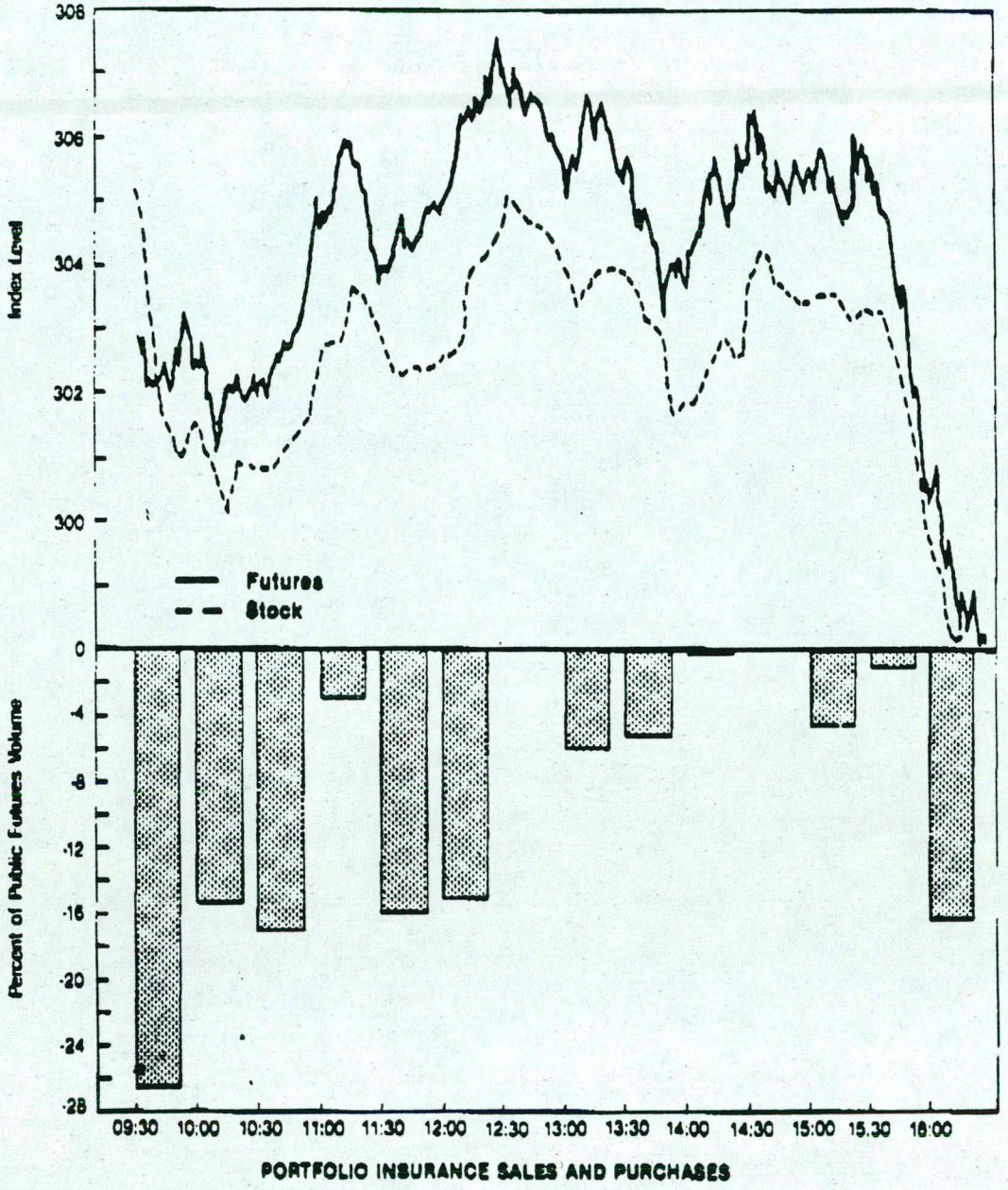


Figure 17

DOW JONES INDUSTRIAL ONE MINUTE CHART

Thursday, October 15, 1987

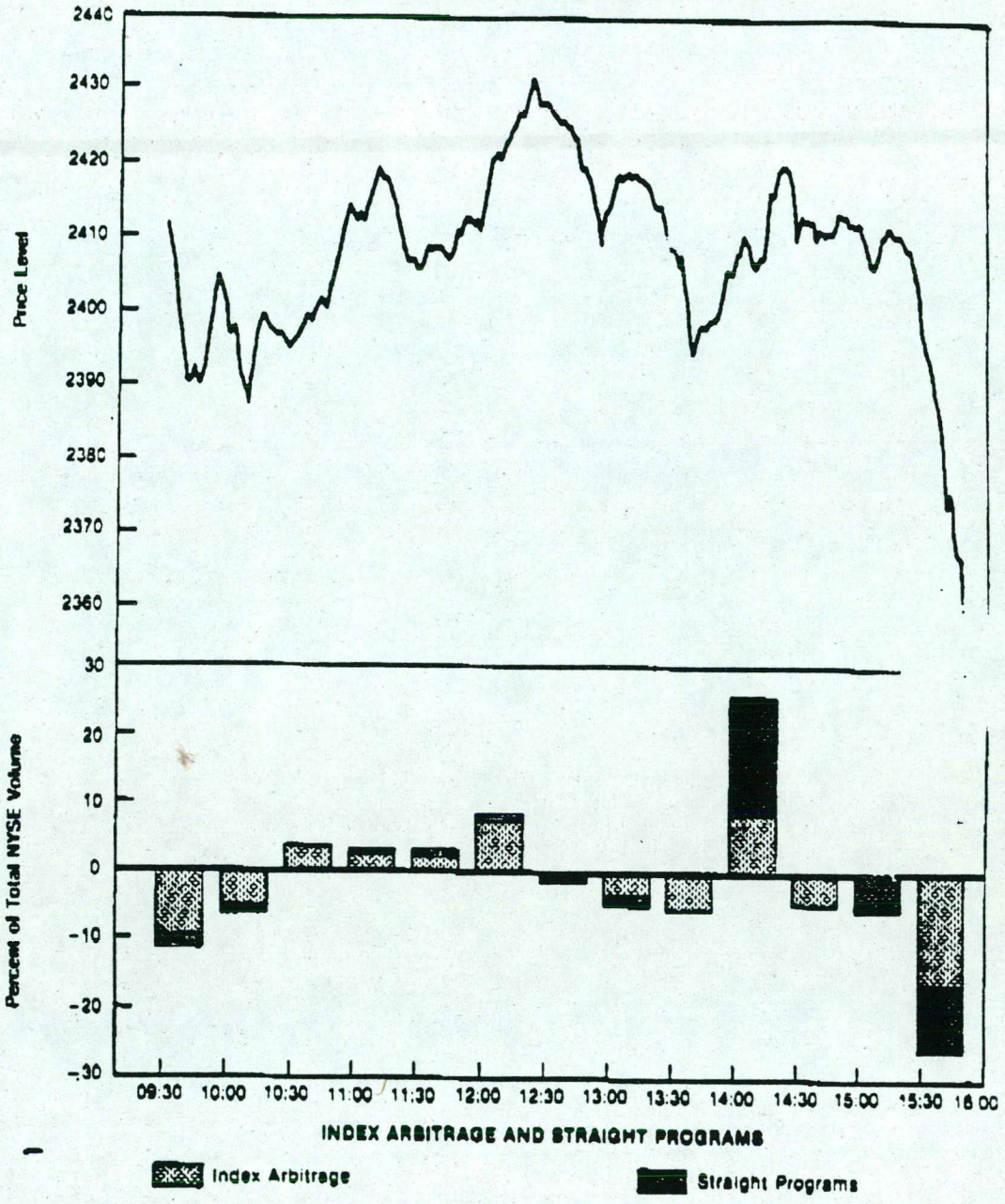
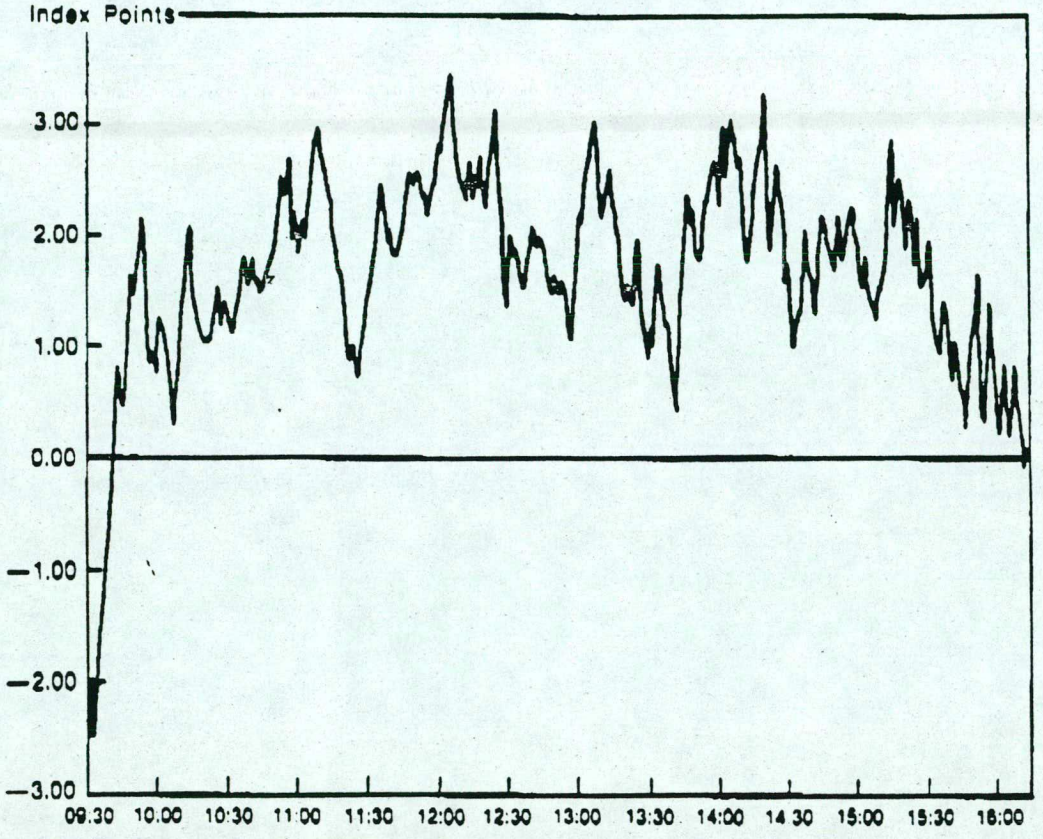


Figure 18

S & P INDEX AND FUTURES CONTRACT SPREAD

Thursday, October 15, 1987



Friday, October 16. Despite the sell-off at the close on Thursday in the U.S., trading in Tokyo on Friday was quiet. London was closed because of a freak hurricane.

Trading in the U.S. markets Friday was affected strongly by the expiration of options on several stock indices. A few firms noted for trading heavily in options were major participants on both sides of the futures market. Because the marked decline in stock prices had made it difficult for options traders to hedge effectively in the options market, much of their activity spilled into the futures market, where they sold futures as a hedge. In so doing, they responded in a manner similar to the reactive decisions of portfolio insurers. All told, options traders accounted for 7 percent of gross selling and 6 percent of gross buying in the futures market.

The stock market was relatively quiet until 11:00 a.m., with the Dow down only seven points, when futures selling by portfolio insurers picked up significantly, running over 2,000 contracts, or $300 million of stock, an hour (see Figures 19 to 21). Index arbitrageurs quickly transmitted this pressure to the stock market, selling $183 million of stock, 18 percent of NYSE volume. The Dow fell 30 points.

The stock market rallied briefly but then plummeted 70 points between noon and 2:00 p.m. Index arbitrage selling was active, accounting for about 16 percent of NYSE volume between 1:00 p.m. and 2:00 p.m. Large block transactions accounted for about half the volume in the 30 stocks making up the Dow. After a technical trading rally fizzled at about 2:30 p.m., the decline quickened in the last half hour of trading. Between 3:30 p.m. and 3:50 p.m., the Dow fell 50 points, then recovered 22 points in the last 10 minutes of trading. During this last half hour, index arbitrageurs had gross sales of $620 million of stock, and institutions sold $151 million of stock baskets. Together, this $771 million of stock sales through the DOT system made up 45 percent of NYSE sales volume during this period.[8]

The Dow was off 108 points, the largest one day drop ever, on volume of 338 million shares. Sales by aggressive trading institutions were especially heavy and concentrated. Four of them sold over $600 million of stock in total. To put this in perspective, an investor transacting $10 million on a normal day would be considered an active trader.

Portfolio insurers and index arbitrageurs were also active. Five of the top seven net sellers in futures were portfolio insurers. As a group they accounted for sales equivalent to $2.1 billion of stock, 17 percent of the non-market maker future sales. Index arbitrageurs transmitted $1.7 billion of selling pressure to the stock market.

[8] These gross sales exceed the numbers shown in Figure 20, which are net. All volume numbers in the daily graphs represent net sales or purchases for the period.

Figure 19

S & P INDEX AND FUTURES CONTRACT

Friday, October 16, 1987

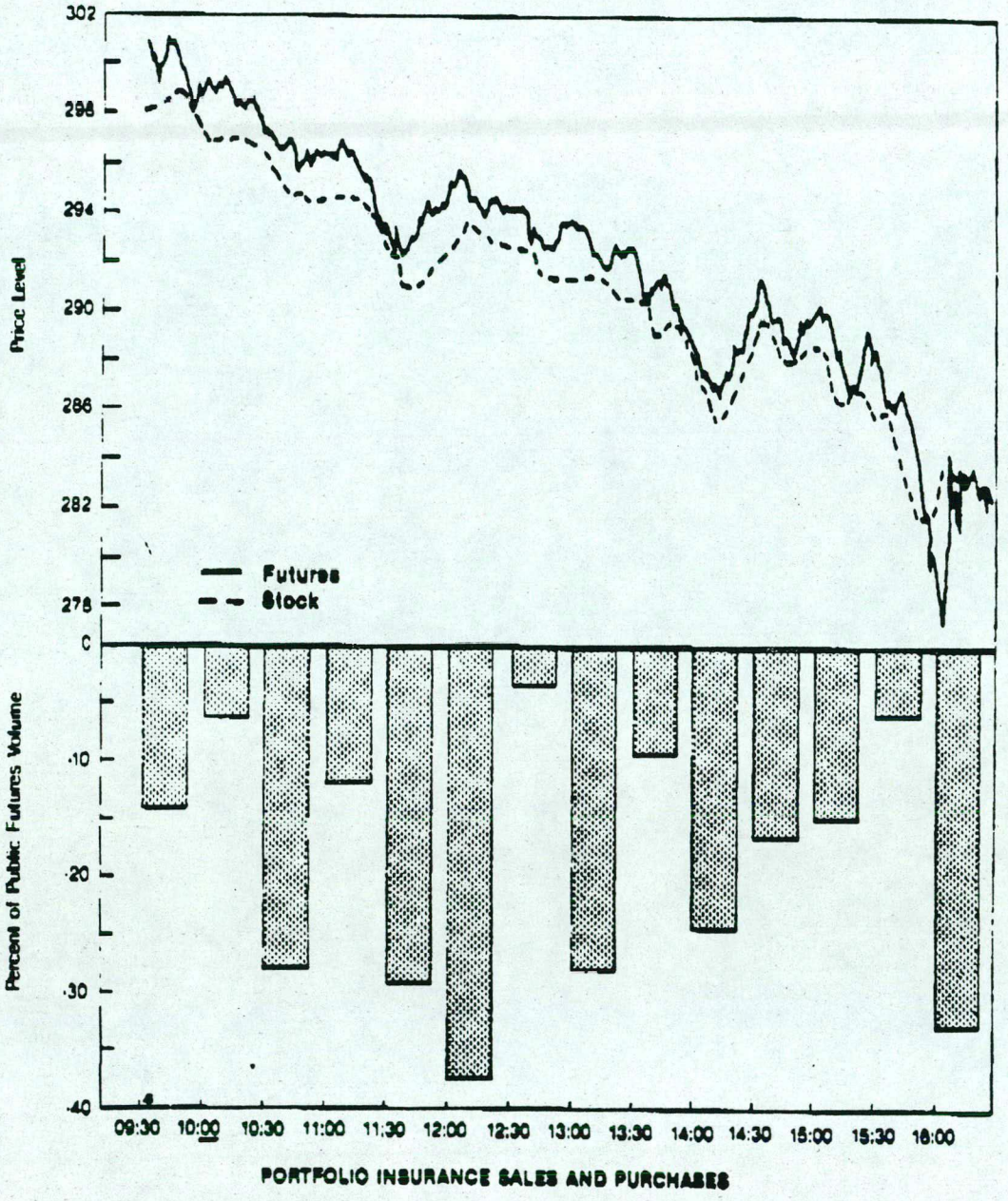


Figure 20

DOW JONES INDUSTRIAL ONE MINUTE CHART

Friday, October 16, 1987

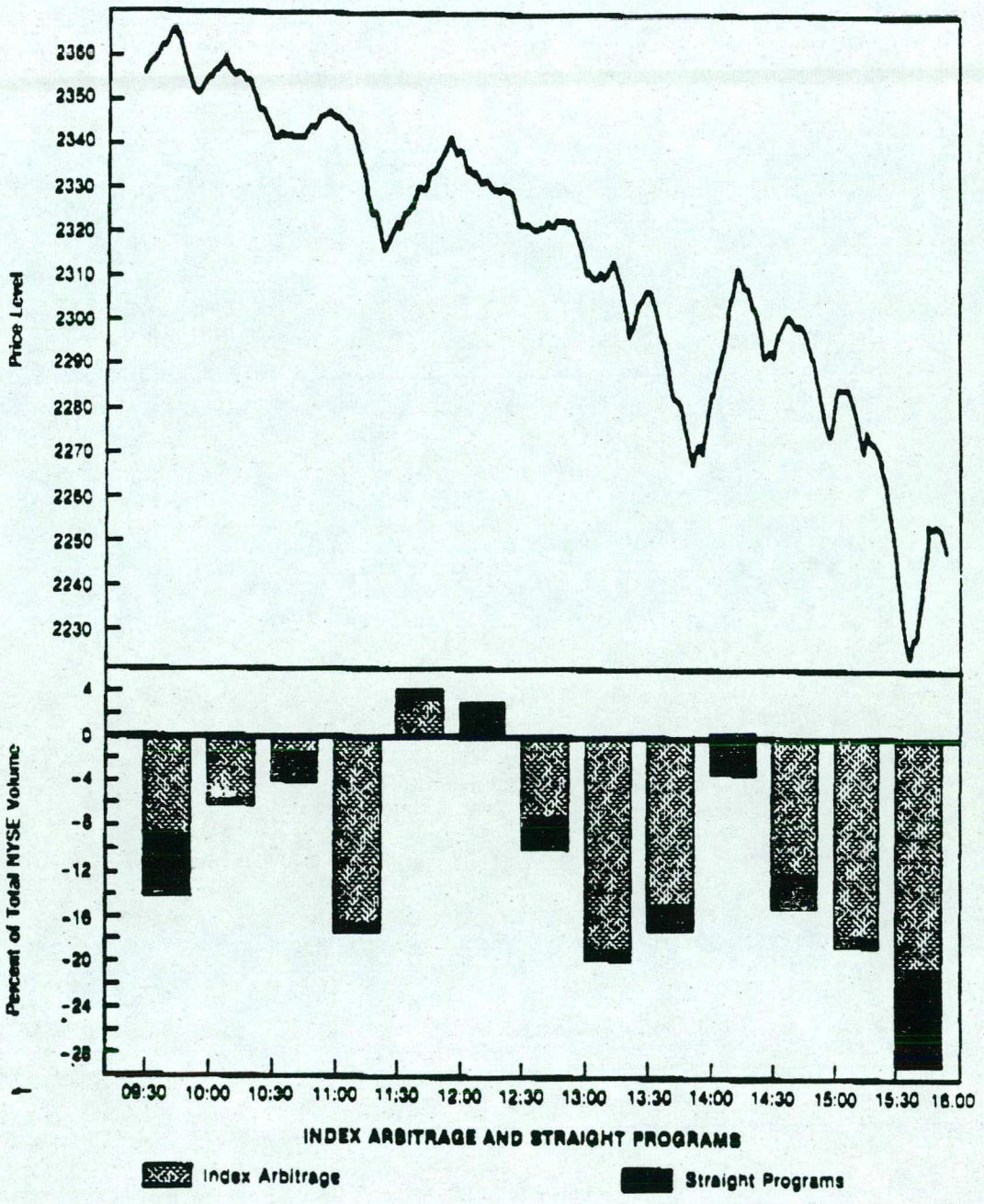
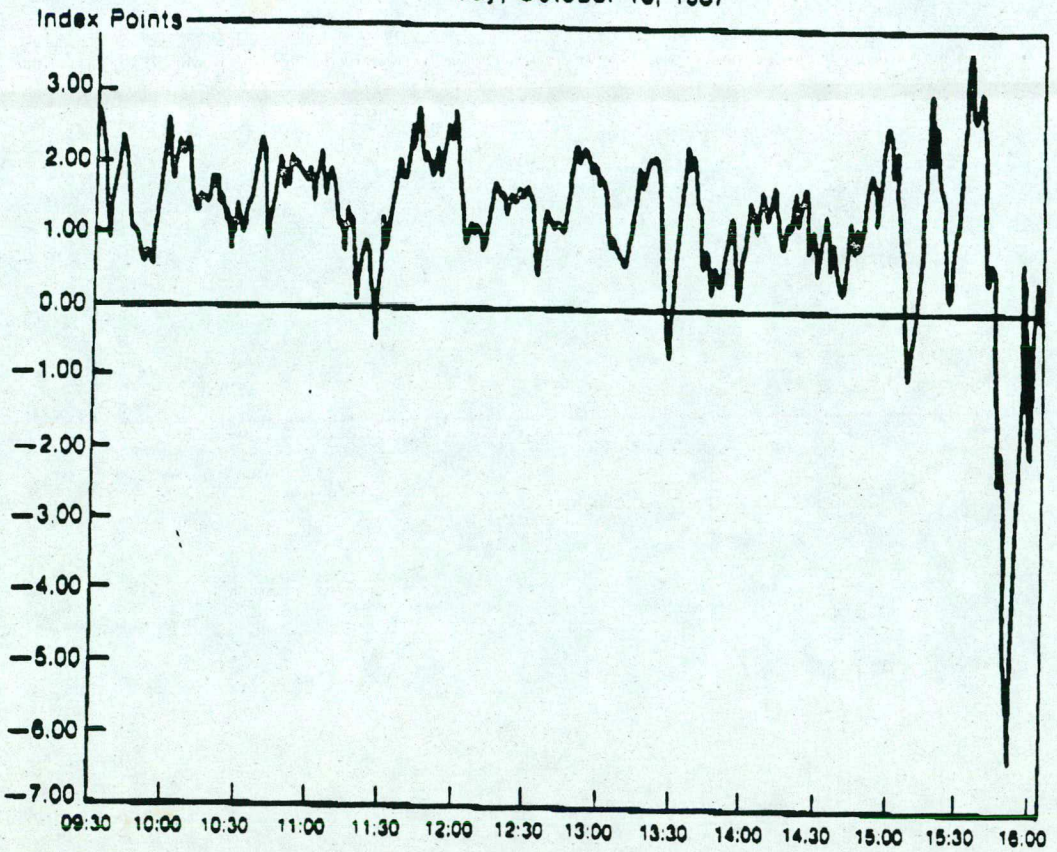


Figure 21

S & P INDEX AND FUTURES CONTRACT SPREAD

Friday, October 16, 1987



The Three Days in Perspective. During October 14 to 16, the Dow fell by over 250 points. The selling was triggered primarily by two proximate causes: disappointingly poor merchandise trade figures, which put downward pressure on the dollar in currency markets and upward pressure on long term interest rates; and the filing of anti-takeover tax legislation, which caused risk arbitrageurs to sell stocks of takeover candidates resulting in their precipitate decline and a general ripple effect throughout the market. The market's decline created a huge overhang of selling pressure—enough to crush the equity markets in the following week. This overhang was concentrated within two categories of reactive sellers, portfolio insurers and a few mutual fund groups, and exacerbated by the actions of a number of aggressive trading-oriented institutions selling in anticipation of further declines.

An example may help illustrate the extent of the portfolio insurance overhang by Friday's close. One portfolio insurance client had followed exactly the instructions of its advisor during the Wednesday to Friday period. Over the weekend, the advisor informed the client that, based on Friday's market close, it should sell on Monday 70 percent of its remaining equities in order to conform to the parameters of the insurance model. This is, of course, an extreme example. But the typical portfolio insurance model calls for stock sales in excess of 20 percent of a portfolio in response to a 10 percent decline in the market.

Various sources indicate that $60 to $90 billion of equity assets were under portfolio insurance administration at the time of the market break.[4] Two consequences were evident. First, portfolio insurers were very active sellers during the Wednesday to Friday period. In the futures market, where they concentrated their activity during this week, they sold the equivalent in stocks of approximately $530 million on Wednesday, $965 million on Thursday and $2.1 billion on Friday. Second, they approached Monday with a large amount of selling already dictated by their models. With the market down 10 percent, their models dictated that, at a minimum, $12 billion (20 percent of $60 billion) of equities should already have been sold. Less than $6 billion had in fact been sold.

A small number of mutual fund groups were also confronted with an overhang. These funds had designed strategies which made it easy for customers to redeem mutual fund shares. On Friday alone, customer redemptions at these funds exceeded fund sales of stock by $750 million. These customers were entitled to repayment based on market prices at the close on Friday. These funds also received substantial redemption requests over the weekend.

The activities of a small number of aggressive trading-oriented institutions both contributed to the decline during this week and posed the prospect of further selling pressure on Monday. These traders could well understand the strategies of the portfolio insurers and mutual funds. They could anticipate the selling those institutions would have to do in reaction to the market's decline. They could also see those institutions falling behind in their selling programs. The situation presented an opportunity for these traders to sell in anticipation of the forced selling by portfolio insurers and mutual funds, with the prospect of repurchasing at lower prices.

During this period, these trading-oriented institutions were active, typically on both sides of the market and often on the same day. On Thursday, seven of these trading-oriented institutions sold a total of just over $800 million of stocks, 9 percent of NYSE volume. The same institution was the fourth largest seller of stocks and the second largest buyer. This institution also ranked third and fourth, respectively, in futures sales and purchases and was active in options trading. On Friday, seven aggressive trading-oriented institutions sold more than $100 million each; four of the seven also bought more than $100

[4] Assets under portfolio insurance administration increased more than fourfold during 1987.

million. That day traders as a group sold $1.4 billion of stocks and bought $1.1 billion. Their activities on these days were a prelude to Monday's sell-off.

Index arbitrage was active throughout the three day period to transmit selling pressure from the futures market to the stock market. But as several charts make apparent (see Figures 14, 17 and 20), it was the timing of arbitrage activities, rather than the aggregate daily level, which had specific impact on the stock market. Heavy index arbitrage activity was most often coincident with substantial intraday stock market moves.

Monday, October 19

In Tokyo, the Nikkei Index, Japan's equivalent of the Dow, fell 2.5 percent. Investors in London sold shares heavily, and by midday the market index there was down 10 percent. Selling of U.S. stocks on the London market was stoked by some U.S. mutual fund managers who tried to beat the expected selling on the NYSE by lightening up in London. One mutual fund group sold just under $90 million of stocks in London.

Selling activity shifted to the U.S. when the equity markets opened. At 9:15 a.m., the MMI futures opened down 2.5 percent from an already weak close on Friday. Fifteen minutes later the S&P 500 futures also opened down under heavy selling pressure by portfolio insurers. During the first half hour of trading, a few portfolio insurers sold futures equivalent to just under $400 million of stocks, 28 percent of the public volume.

By the scheduled 9:30 a.m. opening on the NYSE, specialists faced large order imbalances. In the DOT system alone, almost $500 million of market sell orders were loaded before the market opened. Of this total, $250 million were sales by index arbitrageurs responding to an apparent record futures discount. The remaining $250 million included straight sell programs by a few portfolio insurers permitted by their clients to sell stocks as well as futures; this group would sell more or less consistently from the opening to the closing bell. There were also large sell orders on the floor for blocks of individual stocks by a small number of mutual funds.

Faced with this massive order imbalance, many specialists did not open trading in their stocks during the first hour. Nevertheless, volume was impressive; in the first half hour alone about $2 billion crossed the tape. Of this total, about $500 million, roughly 25 percent of volume in this period, came from one mutual fund group. Slightly less came from the execution of orders in the DOT system for index arbitrageurs and portfolio insurers. In addition, even as these trades were being executed through DOT, another $500 million of sell orders were being loaded into the system backlog. Thus, sell orders from a few institutional traders overwhelmed the stock market at the opening (see Figures 22 to 24).

During the first hour, the reported levels of the S&P and Dow indices reflected out-of-date Friday closing prices for the large number of stocks which had not yet been opened for trading. The result was an apparent record discount for the futures relative to stocks. Based on this apparent discount, index arbitrageurs entered sell-at-market orders through DOT, planning to cover by later purchases of futures at lower prices. However, specialists ultimately opened their stocks at sharply lower levels, in line with the prices at which futures had opened earlier. As this fact became evident, index arbitrageurs realized they had sold stock at prices lower than expected. By 10:30 a.m., when most stocks had opened, the Dow was around 2,150 compared with the Friday close of near 2,250.

Starting around 10:50 a.m., these arbitrageurs rushed to cover their positions through purchases of futures. The result was an immediate rise in the futures market. By 11:00 a.m., futures were at a premium, and the stock market in turn began an hour-long rally.

Figure 22

S & P INDEX AND FUTURES CONTRACT

Monday, October 19, 1987

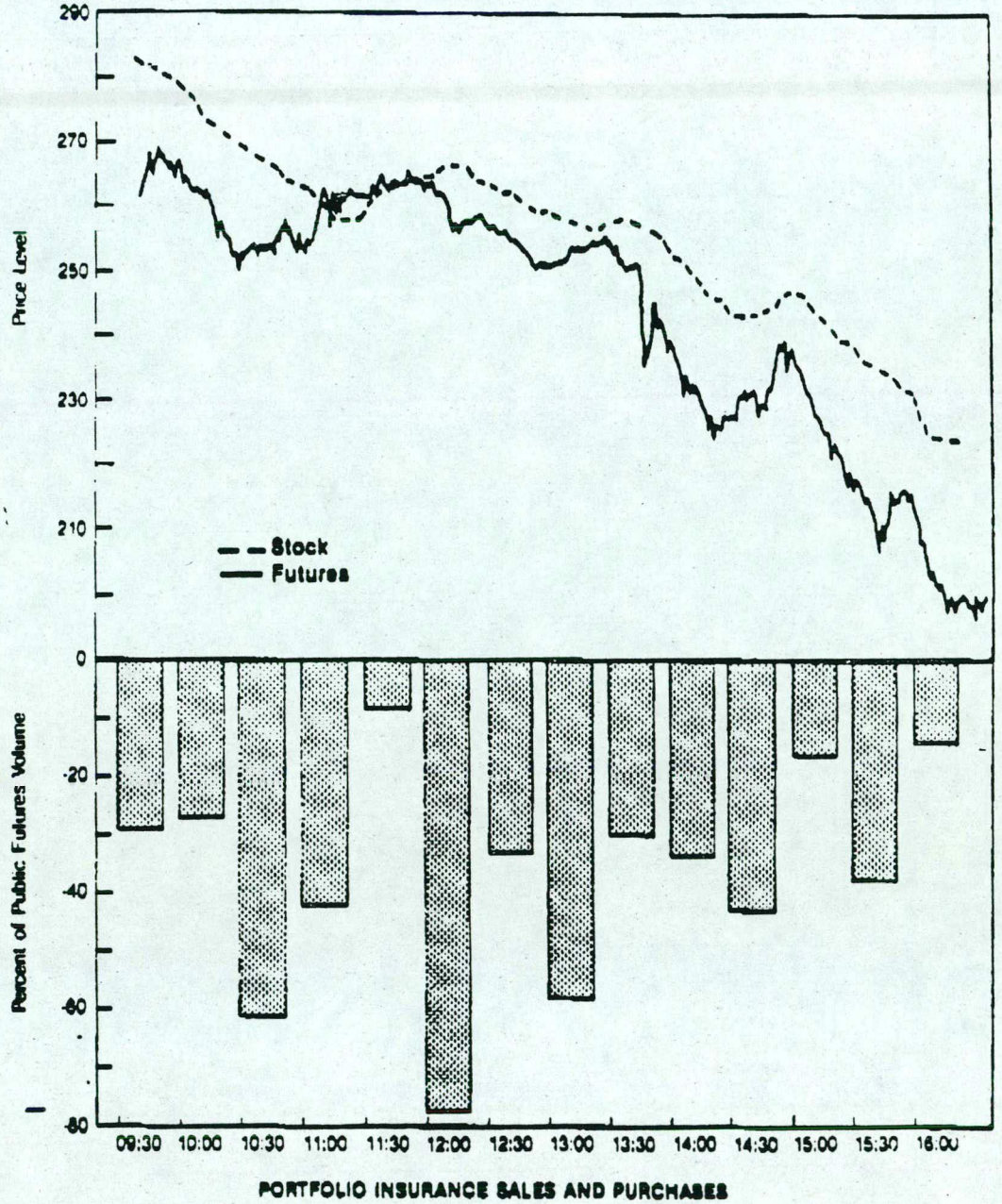


Figure 23

DOW JONES INDUSTRIAL ONE MINUTE CHART

Monday, October 19, 1987

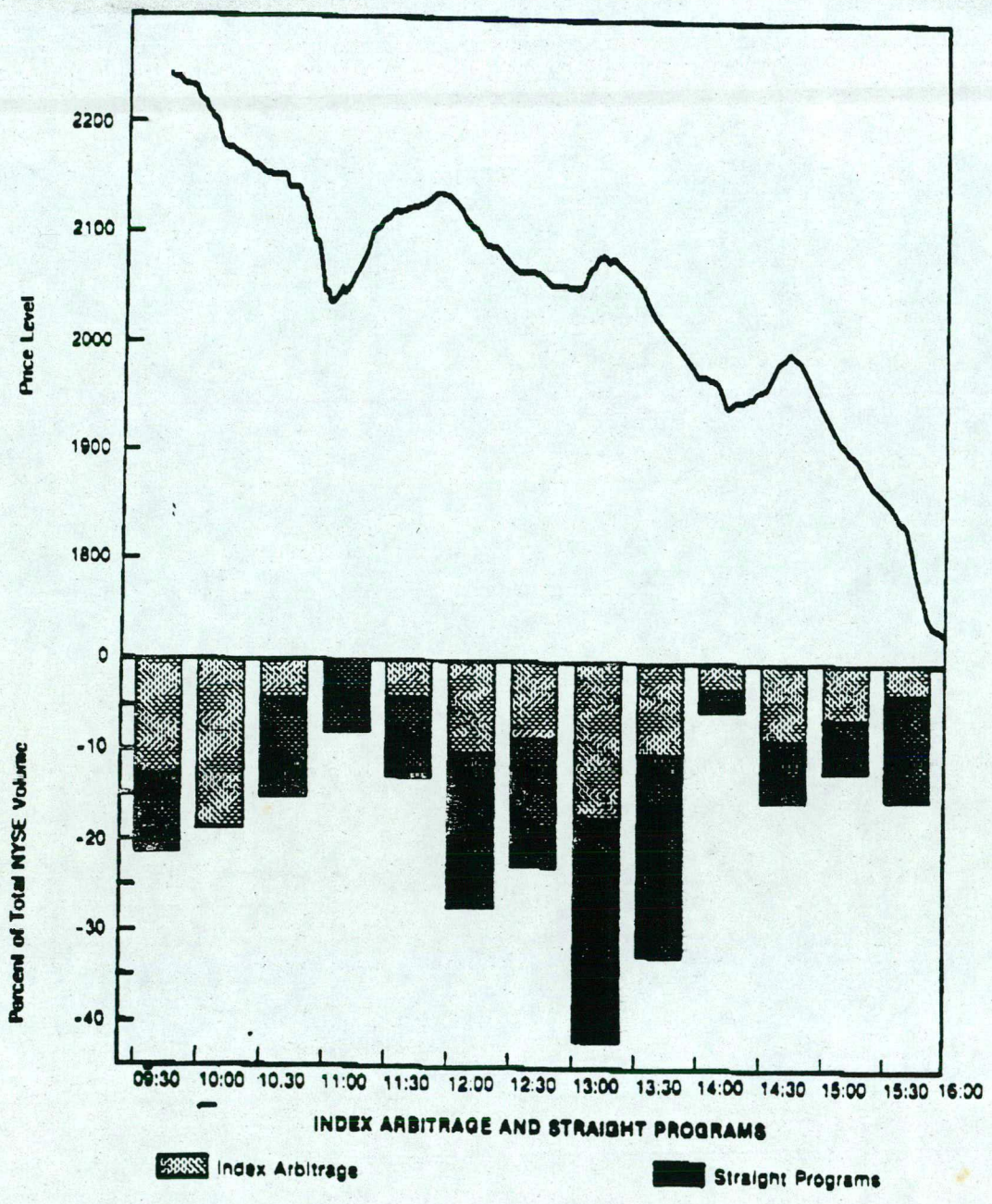
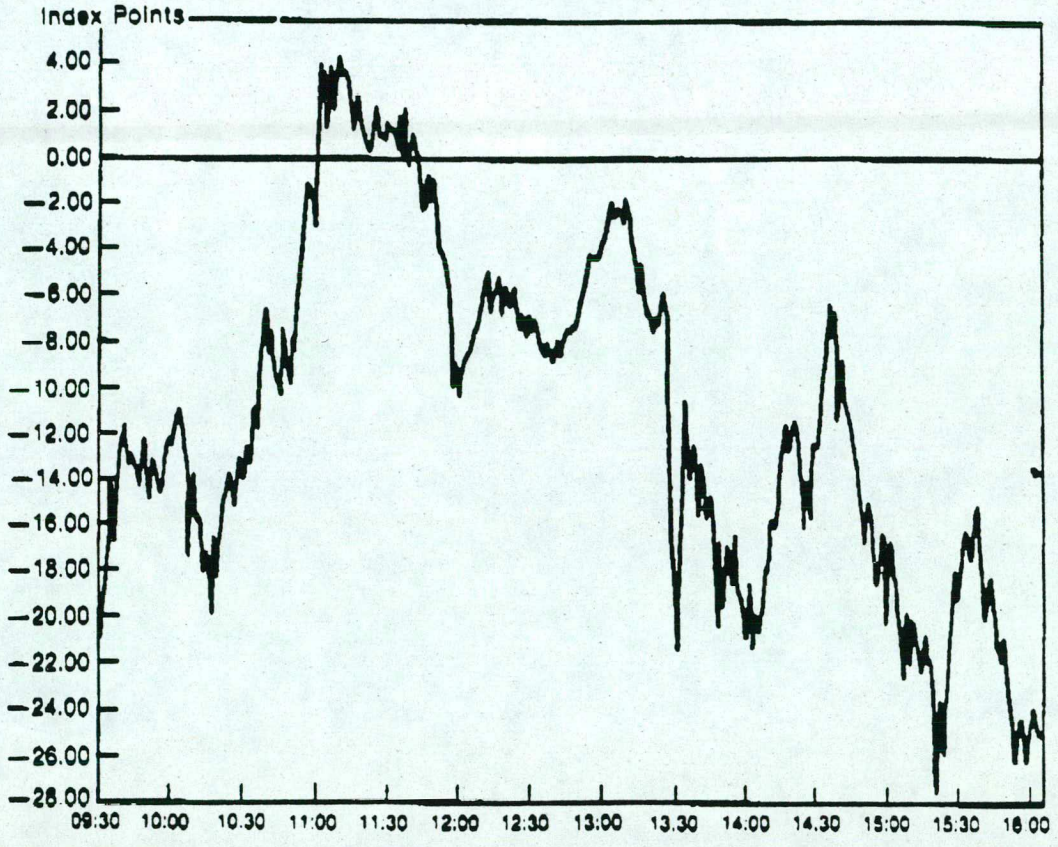


Figure 24

S & P INDEX AND FUTURES CONTRACT SPREAD

Monday, October 19, 1987



Even as the futures and then the stock markets rallied, one portfolio insurance client began to modify its selling strategy in response to the anticipated volume of sales. On previous days and during the first hour of Monday, this institutional investor had relied on futures sales as the method to increase its cash position. Around 10:30 a.m., this institution augmented futures sales with straight stock sell programs through DOT. These sales of stock baskets by this institution would ultimately continue in 13 waves of almost $100 million each until about 2:00 p.m. and total just under $1.1 billion.

Thus, one hour into the trading day, two mechanisms were operating at high volume through DOT to transmit futures selling pressure to the stock market: index arbitrage and the diversion of portfolio insurance sales from the futures market into straight stock sell programs.

Trading on the NYSE and CME is shown schematically in Figure 25. In New York, the stock exchange traded about $21 billion of stock. In Chicago, the CME traded futures equivalent to almost $20 billion, of which about 50 percent was trading by public customers. Including trading by specialists and market makers, almost $41 billion of stock or equivalent futures was traded on these exchanges.

The selling pressure in futures led to discounts of historic size. In response to these huge discounts, three mechanisms came into play to transmit selling pressure from futures to stocks. First, index arbitrage executed $1.7 billion of program sales through DOT, matched by equivalent futures purchases. Second, there were additional straight program sales of stock equal to $2.3 billion. Most of this was portfolio insurance selling diverted from the futures market to the stock market by the large discount. Taken together, arbitrage programs and straight sell programs totaled $4 billion, almost 20 percent of the sales on the first 600 million share day in the NYSE's history. These program sales would no doubt have been even higher if the DOT system had functioned more effectively after 2:00 p.m. Third, some indeterminant portion of the $41 billion of purchases was diverted from more expensive stocks to cheaper futures.

Starting around 11:40 a.m., portfolio insurance sales overwhelmed the rally. Between then and 2:00 p.m., the Dow fell from 2,140 to 1,950, a decline of just under 9 percent. The last 100 points of this decline occurred after reports began circulating that the NYSE might close. The break below 2,000 was the first time this level had been penetrated since January 7, 1987. Over these two hours, the futures index fell 14.5 percent. Portfolio insurance activity intensified. Between 11:40 a.m. and 2:00 p.m., in the futures market portfolio insurers sold approximately 10,000 contracts, equivalent to about $1.5 billion and representing about 41 percent of futures volume exclusive of market makers (i.e. locals). In addition, portfolio insurers authorized to sell stock directly sold approximately $900 million in stocks on the NYSE during this period. In the stock and futures markets combined, portfolio insurers contributed over $3.7 billion in selling pressure by early afternoon.

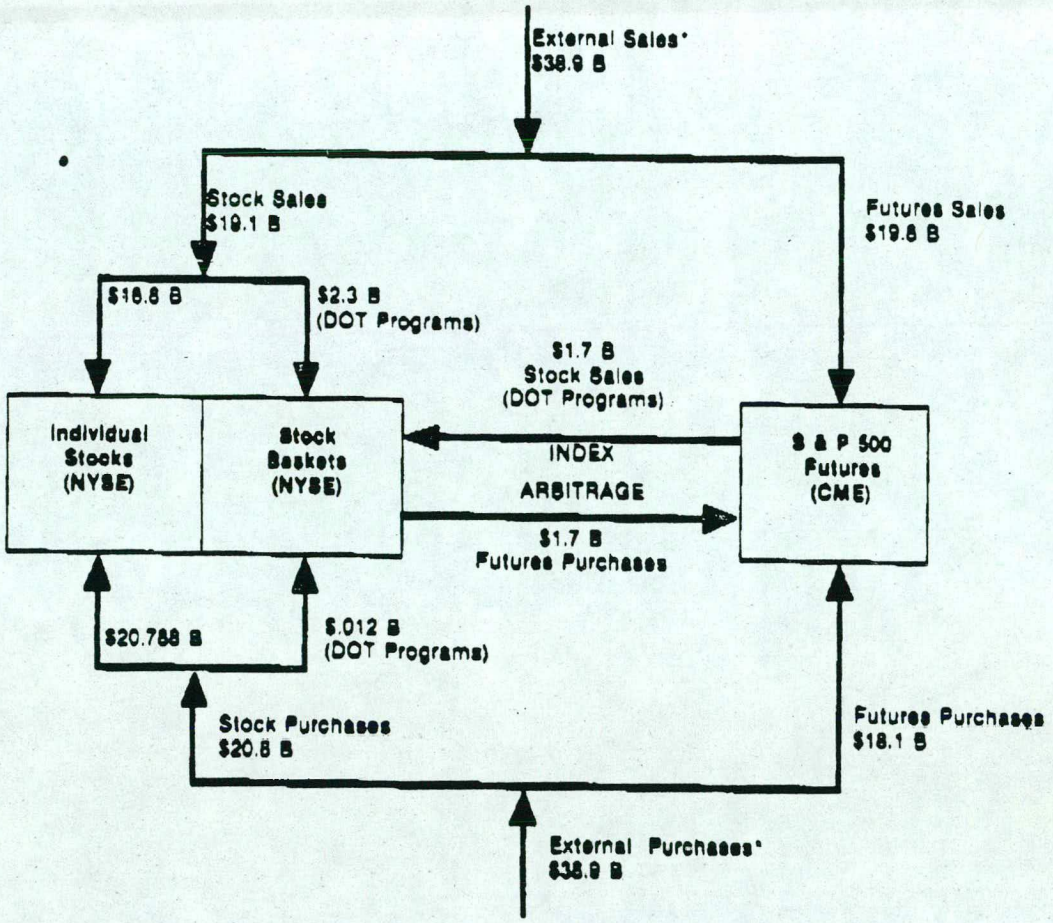
Throughout most of this period, index arbitrage had succeeded in transmitting futures selling pressure back to the stock market. After about 2:00 p.m., index arbitrage slowed because of concerns about delays in DOT and the consequent ineffective execution of basket sales. Another source of sales through DOT stopped at around 2:00 p.m. when the one institution which had already sold 13 baskets of stock, each worth just under $100 million, discontinued its sell program. Up until this hour, index arbitrage and straight program selling totaled $3.2 billion. Relieved of these selling pressures, the stock market enjoyed a brief respite. The Dow rallied back to the psychologically important 2,000 level by 2:45 p.m.

The result of the withdrawal of some index arbitrage and diverted portfolio insurer sales from the DOT system was that neither mechanism was sufficient to keep the stock and futures markets from disconnecting. Enormous

Figure 25

SCHEMATIC OF EQUITY AND PURCHASES NYSE STOCKS AND CME FUTURES

Monday, October 19th



*Includes Specialists and Market Makers

discounts of futures relative to stocks were free to develop as the futures market plummeted, disconnected from the stock market.

The rest of Monday afternoon was disastrous. Heavy futures selling continued by a few portfolio insurers. In the last hour and one half of futures trading, these institutions sold 6,000 contracts, the equivalent of $660 million of stock. With some index arbitrageurs unwilling to sell stock through DOT, they also withdrew from the futures side of their trading, denying buying support to the futures market, allowing it to fall to a discount of 20 index points. In addition, the appearance of this dysfunctionally large discount inhibited buyers in the stock market. With these stock buyers gone, the Dow sank almost 300 points in the last hour and one quarter of stock trading, to close at 1,738. Portfolio insurance futures selling continued even after stocks closed.

All told, Monday, October 19 was perhaps the worst day in the history of U.S. equity markets. By the close of trading, the Dow index had fallen 508 points, almost 23 percent, on volume of 604 million shares worth just under $21 billion. Even worse, the S&P 500 futures had fallen 29 percent on total volume of 162,000 contracts, valued at almost $20 billion.

This record volume was concentrated among relatively few institutions. In the stock market, the top four sellers alone accounted for $2.85 billion, or 14 percent of total sales. The top 15 sellers as a group accounted for $4.1 billion, or about 20 percent of total sales. The top 15 buyers purchased $2.2 billion, almost 11 percent of total volume.[8] In the futures market the top 10 sellers accounted for sales equivalent to $5 billion, roughly 50 percent of the non-market maker total volume.

The contribution of a small number of portfolio insurers and mutual funds to the Monday selling pressure is even more striking. Out of total NYSE sales of just under $21 billion, sell programs by three portfolio insurers made up just under $2 billion. Block sales of individual stocks by a few mutual funds accounted for another $900 million. About 90 percent of these sales were executed by one mutual fund group. In the futures market, portfolio insurer sales amounted to the equivalent of $4 billion of stocks, or 34,500 contracts, equal to over 40 percent of futures volume, exclusive of locals' transactions; $2.8 billion was done by only three insurers. In the stock and futures markets together, one portfolio insurer sold stock and futures with underlying values totaling $1.7 billion. Huge as this selling pressure from portfolio insurers was, it was a small fraction of the sales dictated by the formulas of their models.

Tuesday, October 20

Overnight the Tokyo and London stock markets declined dramatically, falling just under 15 percent. In the U.S., the Federal Reserve issued a statement just before the equity market's opening that it would provide needed liquidity to the financial system. On U.S. equity markets, the start of trading Tuesday stood in marked contrast to Monday. Both stock and futures markets opened with dramatic rises. On the NYSE, many stocks could not open due to "buy-side" order imbalances. The majority of these imbalances were made up of "market orders," primarily from value-oriented investors and traders with short stock or futures positions. The NYSE specialists, burdened with more than $1 billion in stock inventories at Monday's close, opened stocks at higher levels and reduced their inventories. In the first hour, the Dow index rose just under 200 points (see Figures 26 to 28).

[8] This compares with specialist buying power estimated to be no more than $3 billion at the start of Monday.

Figure 26

S & P INDEX AND FUTURES CONTRACT

Tuesday, October 20, 1987

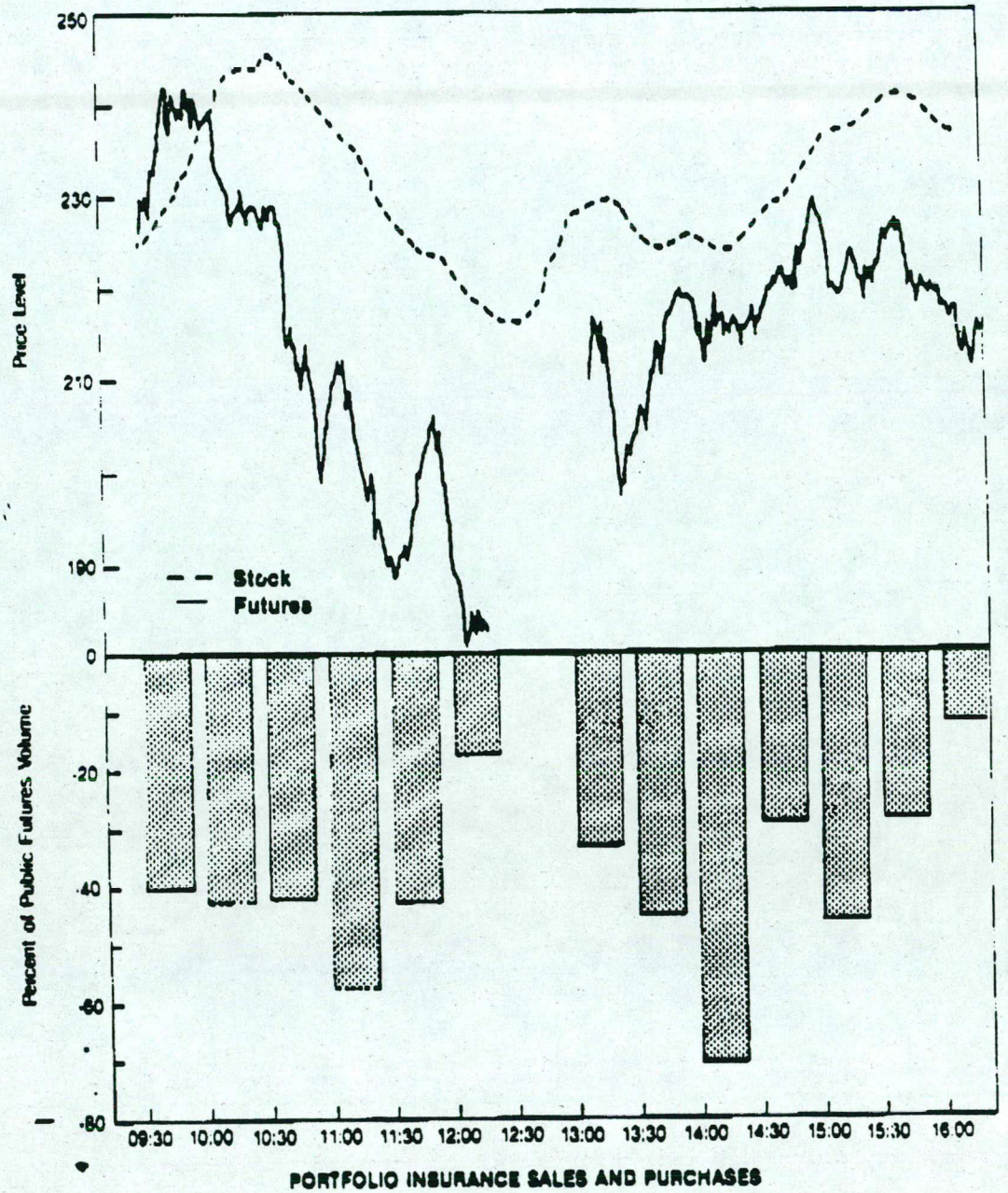


Figure 27

DOW JONES INDUSTRIAL ONE MINUTE CHART

Tuesday, October 20, 1987

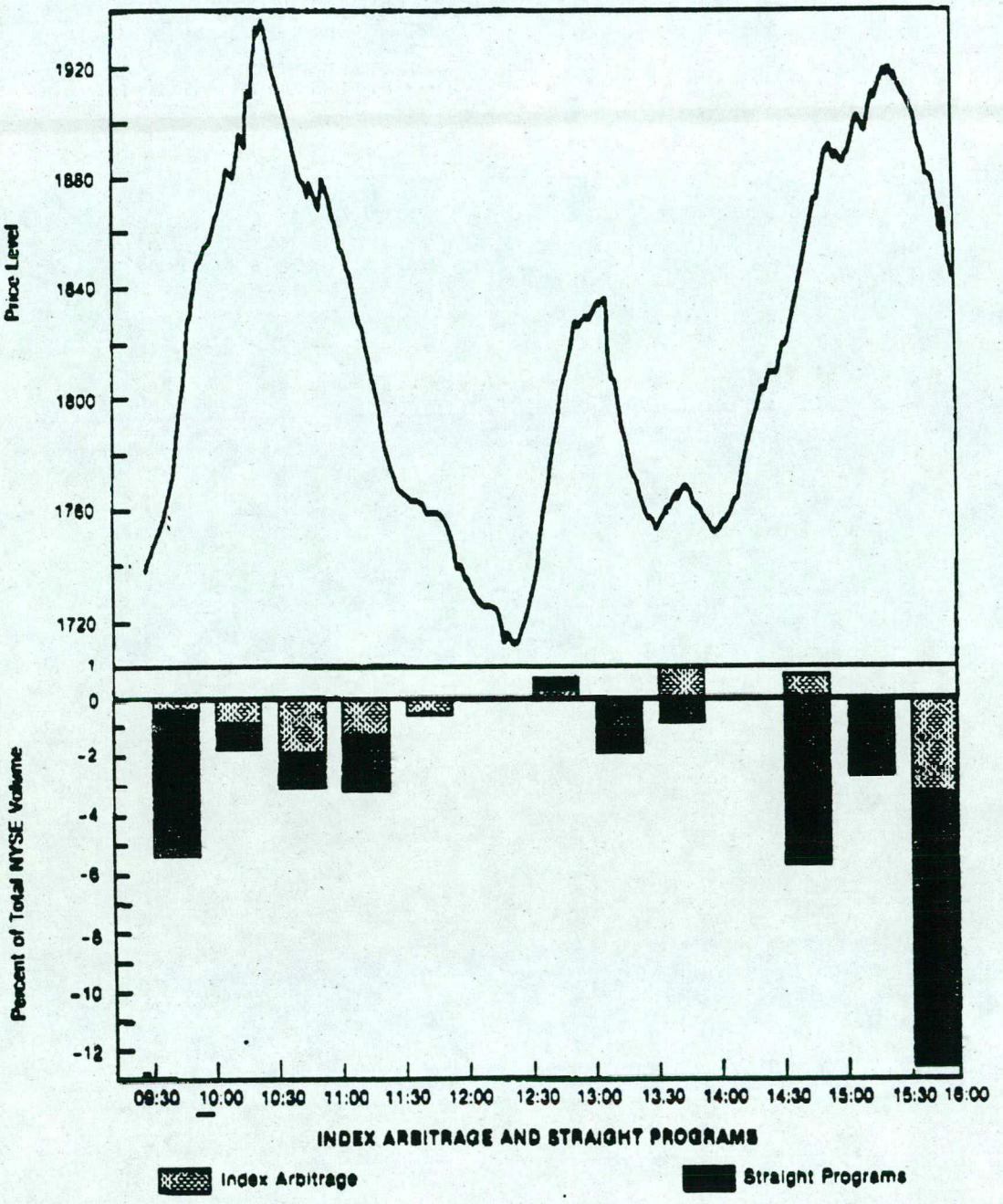
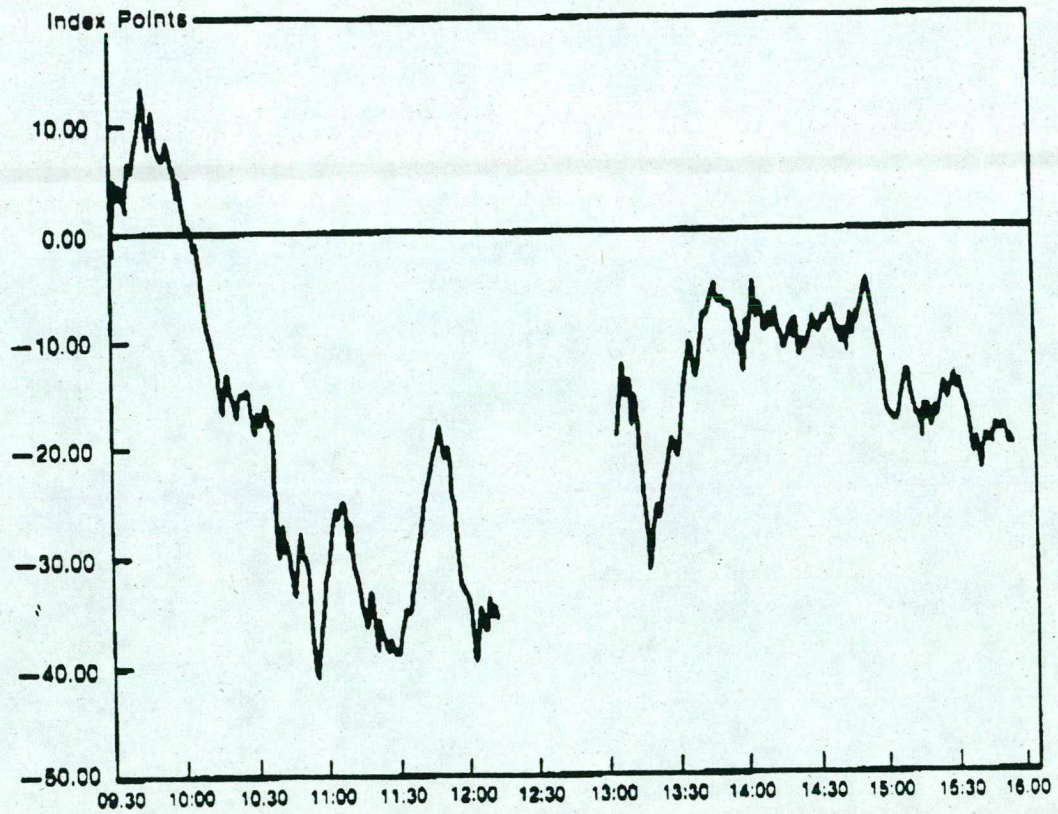


Figure 28

S & P INDEX AND FUTURES CONTRACT SPREAD

Tuesday, October 20, 1987



In the futures market, the S&P 500 contract opened up 10 percent at 223. Buying pressure came from aggressive trading-oriented institutions who wanted to buy the market but were unsure how quickly they could get execution on the NYSE. Buying pressure also came from traders wanting to close out short positions after hearing rumors about the financial viability of the CME's clearinghouse. These rumors were unfounded, although two New York investment banks had to wait until late in the afternoon before receiving variation margin payments totaling about $1.5 billion from the CME clearinghouse. The rumors did affect Tuesday's trading, with futures volume dropping 22 percent below Monday's level.

The morning rally in the futures market ended abruptly at 10:00 a.m., as heavy selling by portfolio insurers and traders overwhelmed buying. Portfolio insurance selling in the first hour totaled the equivalent of almost $900 million of stock. The futures contract quickly moved to an enormous discount (as large as 40 index points) as the market went into freefall, plummeting 27 percent between 10:00 a.m. and 12:15 p.m. By the end of this period, portfolio insurance sales for the day totaled the equivalent of $1.75 billion of stock; by the end of the day it added up to 40 percent of futures activity of public sellers. At its low, the S&P 500 futures contract price implied a Dow level of about 1,400. Contributing greatly to this freefall was the lack of index arbitrage buying which would normally have been stimulated by the huge discount of futures to stock. At its opening, the NYSE had prohibited broker-dealers from using the DOT system to execute index arbitrage orders for their own accounts. As on Monday afternoon, the primary linkage between the two markets had been disconnected.

The stock market also ran out of buying support by midmorning and began to follow the futures market down. Although individual stocks were opening and closing again at various times all morning and early afternoon, record or near-record volume was executed in every half hour period. During the first two hours, 259 million shares were traded. Selling pressure was widespread, much of it from mutual funds who were dealing with expected redemptions, portfolio insurers who were switching from selling futures to selling stocks, and some index arbitrageurs. In addition, the large discount between futures and stocks acted as a "billboard," worrying many investors that further declines were imminent. By 12:30 p.m., the Dow had fallen to just above 1,700.

At this point a number of exchanges closed trading temporarily. The CBOE suspended trading at 11:45 a.m., based on its rule that trading on the NYSE must be open in at least 80 percent of the stocks which constitute the options index it trades. At 12:15 p.m., the CME announced a trading suspension in reaction to individual stock closings on the NYSE and the rumor of the imminent closing of the NYSE itself.

During Tuesday morning, the dynamics of trading in stocks and futures had become dysfunctional. The futures market was falling under selling pressure from portfolio insurers. Normally, the large discount would have attracted buyers; under the current circumstances, however, some potential buyers were afraid of the credit risk perceived to exist in futures and many stock investors were simply not authorized to buy futures. In addition, index arbitrage activity was limited because DOT was no longer available to some market participants. Because of the futures discount, those market professionals who could sell stocks did so. At the same time, the huge discount at which futures were selling made stocks look "expensive" and stifled buying demand in the stock market. The stock market "drafted" down in the wake of the futures market. The result was sell-side order imbalances in both markets, leading to the near disintegration of market pricing.

Closing the futures market had a number of marked effects on the equity market. On the sell side, it disconnected most of the portfolio insurers from the market. On the buy side, there was no longer a "cheap" futures alternative

to buying stocks. Finally, the negative psychology of the "billboard" effect was eliminated. The reaction of the stock market was dramatic: the Dow rallied 125 points in the next 45 minutes.

When the futures market reopened just after 1:00 p.m., it was still at a substantial 17 point discount to stocks. Many of the effects which had rallied the stock market were reversed. Portfolio insurers resumed selling futures and the stock market began drafting down again. The Dow lost almost 100 points in the next half hour.

By early Tuesday afternoon, the equity market was again in freefall and needed reassurance. This came from a series of announced stock buyback programs by major corporations. By committing to these programs, the corporations provided needed support for the future level of their stocks. The buying power represented by these announced programs would ultimately total over $6 billion by Tuesday evening.[6] Around 2:00 p.m., the combined effect of buybacks already announced and those expected turned the equity market around. The Dow rallied 170 points between 2:00 p.m. and 3:30 p.m. After a decline in the last 30 minutes induced by program sales, the Dow closed with a net gain for the day of over 100 points, the largest gain on record.

Although Monday was the day of the dramatic stock market decline, it was midday Tuesday that the securities markets and the financial system approached breakdown. First, the ability of securities markets to price equities was in question. The futures and stock markets were disconnected. There were few buyers in either market and individual stocks ceased to trade. Investors began to question the value of equity assets.

Second, and more serious, a widespread credit breakdown seemed for a period of time quite possible. Amid rumors, subsequently revealed to be unfounded, of financial failures by some clearinghouses and several major market participants, and exacerbated by the fragmentation and complexity of the clearing process, the financial system came close to gridlock. Intermarket transactions required funds transfers and made demands for bank credit almost beyond the capacity of the system to provide.

Summary

Although the equity market's behavior during this week was complex and rich in detail, several important themes emerge. First, reactive selling by institutions, which followed portfolio insurance strategies and sought to liquidate large fractions of their stock holdings regardless of price, played a prominent role in the market break. By reasonable estimates, the formulas used by portfolio insurers dictated the sale of $20 to $30 billion of equities over this short time span. Under such pressure, prices must fall dramatically. Transaction systems, such as DOT, or market stabilizing mechanisms, such as the NYSE specialists, are bound to be crushed by such selling pressure, however they are designed or capitalized.

Second, a few mutual funds sold stock in reaction to redemptions. To the market their behavior looked much like that of the portfolio insurers, that is, selling without primary regard to price. Third, some aggressive trading-oriented investors, seizing the profit opportunity presented by the predictable forced selling by other institutions, contributed to the market break. Fourth, much of the selling pressure was concentrated in the hands of surprisingly few institutions. A handful of large investors provided the impetus for the sharpness of the decline.

[6] A number of companies made buyback announcements during Monday afternoon and Tuesday morning. Those made early Tuesday afternoon, however, came from many "blue chip" companies and seemed sufficient to turn the tide of investor sentiment.

Fifth, as the Figures showing intraday trading patterns make clear, futures and stock market movements were inextricably related. Portfolio insurers sold in the futures market, forcing prices down. The downward price pressure in the futures market was then transmitted to the stock market by index arbitrage and diverted portfolio insurance sales. While index arbitrageurs may not have accounted for a substantial part of total daily volume, they were particularly active during the day at times of substantial price movements. They were not, however, the primary cause of the movements; rather, they were the transmission mechanism for the pressures initiated by other institutions.

Finally, there were periods when the linkage between stock and futures markets became completely disconnected, leading to a freefall in both markets.

The juxtaposition of a record 508 point decline on Monday and a record 102 point bounceback on Tuesday suggests that these trading forces outstripped the capacity of market infrastructures.

The over-the-counter market and foreign stock markets experienced concurrent declines. The dominant position of NYSE stocks made such a sympathetic reaction predictable.

FIGURE 29.—NYSE LARGE INSTITUTIONAL DOLLAR VOLUME—SALES [1]

[In millions of dollars]

	October 15	October 16	October 19	October 20
SELL				
Portfolio insurers	$257	$566	$1,748	$698
Other pension	190	794	875	334
Trading-oriented investors	1,156	1,446	1,751	1,740
Mutual funds	1,419	1,339	2,168	1,726
Other financial	516	959	1,416	1,579
Total	3,538	5,104	7,598	6,077
Index arbitrage (included in above)	717	1,592	1,774	128

[1] Sample does not include: (1) individual investors, (2) institutional accounts with purchases and sales less than $10 million per day and (3) certain sizable broker/dealer trades.

FIGURE 30.—NYSE LARGE INSTITUTIONAL DOLLAR VOLUME—PURCHASES [1]

[In millions of dollars]

	October 15	October 16	October 19	October 20
BUY				
Portfolio insurers	$201	$161	$449	$563
Other pension	388	773	1,481	920
Trading-oriented investors	1,028	1,081	1,316	1,495
Mutual funds	996	1,485	1,947	1,858
Other financial	796	1,221	2,691	2,154
Total	3,391	4,721	7,884	7,290
Index arbitrage (included in above)	407	394	110	32

[1] Sample does not include: (1) individual investors, (2) institutional accounts with purchases and sales less than $10 million per day and (3) certain sizable broker/dealer trades.

FIGURE 31.—CME LARGE TRADER SALES

[Dollar amounts in millions]

	October 14	October 15	October 16	October 19	October 20
SELL					
Portfolio insurers	$534	$966	$2,123	$4,037	$2,818
Arbitrageurs	$108	$407	$392	$129	$31
Options	$554	$998	$1,399	$999	$635
Locals	$7,325	$7,509	$7,088	$5,479	$2,718
Other pension	$37	$169	$234	$631	$514
Trading-oriented investors	$1,993	$2,050	$3,373	$2,690	$2,765
Foreign	$398	$442	$479	$494	$329
Mutual funds	$46	$3	$11	$19	$40
Other financial	$49	$109	$247	$525	$303
Published total	$16,849	$16,830	$19,640	$16,987	$13,641
Volume accounted for	$11,045	$12,668	$15,347	$14,801	$10,152
Percent accounted for	65.2	67.2	78.1	78.0	74.4
Portfolio insurance: Percent of publicly accounted for volume	14.37	16.80	25.70	43.30	37.91

FIGURE 32.—CME LARGE TRADER PURCHASES

[Dollar amounts in millions]

	October 14	October 15	October 16	October 19	October 20
BUY					
Portfolio insurers	$71	$171	$109	$113	$505
Arbitrageurs	$1,313	$717	$1,705	$1,582	$119
Options	$594	$884	$1,254	$915	$544
Locals	$7,301	$7,530	$7,125	$5,882	$2,689
Other pension	$90	$76	$294	$447	$1,070
Trading-oriented investors	$1,494	$2,236	$3,634	$4,510	$4,004
Foreign	$240	$298	$443	$609	$418
Mutual funds	$0	$27	$73	$143	$61
Other financial	$155	$57	$126	$320	$517
Published total	$16,949	$18,830	$19,640	$18,987	$13,641
Volume accounted for	$11,259	$11,976	$14,763	$14,320	$9,915
Percent accounted for	66.4	63.6	75.2	75.4	72.7
Portfolio insurance: Percent of publicly accounted for volume	1.80	3.86	1.43	1.31	6.98

FIGURE 33.—CME LARGE TRADER CONTRACT VOLUME (SALES)

[In number of contracts]

	October 14	October 15	October 16	October 19	October 20
SELL					
Portfolio insurers	3,480	6,413	14,627	34,446	26,146
Arbitrageurs	700	2,700	2,700	1,100	285
Options	3,569	6,616	9,643	7,667	5,690
Locals	47,426	49,773	48,847	48,753	25,214
Other pension	238	1,122	1,615	5,387	4,770
Trading-oriented investors	12,906	13,587	23,246	22,096	25,651
Foreign	2,575	2,927	3,301	4,212	3,050
Mutual funds	300	19	77	160	375
Other financial	317	720	1,705	4,476	2,808
Published total	109,740	124,810	135,344	162,022	126,562
Contracts accounted for	71,511	83,679	106,761	126,301	94,189
Percent accounted for	65	67	78	78	74

FIGURE 34.—CME LARGE TRADER CONTRACT VOLUME (PURCHASES)

[In number of contracts]

	October 14	October 15	October 16	October 19	October 20
BUY					
Portfolio insurers	461	1,136	751	964	4,662
Arbitrageurs	8,500	4,750	11,750	13,500	1,100
Options	3,848	5,725	8,639	7,804	5,049
Locals	47,272	49,911	49,098	48,487	24,945
Other pension	562	504	2,029	3,816	8,931
Trading-oriented investors	9,673	14,823	25,043	38,482	37,149
Foreign	1,553	1,972	3,051	5,199	3,874
Mutual funds	0	179	505	1,217	473
Other financial	1,006	376	967	2,727	4,783
Published total	109,740	124,810	135,344	162,022	126,562
Contracts accounted for	72,895	79,376	101,733	122,196	91,996
Percent accounted for	66	64	75	75	73

Chapter Five

Market Performance

Market performance can be measured against a variety of quantitative and qualitative criteria, including the availability of the market, the liquidity and depth provided by the market makers, the orderliness and fairness of the market and the strength of the clearing and credit systems that support the market. The events of October 19 and 20 tested the capacity of the equity market to a degree that was not widely anticipated.

Availability of Market

The most immediately striking fact about the performance of the equity market during the market break is that, in the face of selling pressure of unprecedented severity, it handled a record volume of transactions. A summary of the volumes traded in each marketplace follows:

PERCENTAGE OF DAILY AVERAGE TRADING VOLUME

	NYSE[1]	NASDAQ[1]	S&P 500 futures[2]	S&P 100 option[2]
October 14	115	97	135	162
October 15	145	107	153	180
October 16	188	131	166	133
October 19	335	149	199	72
October 20	337	189	156	42

[1] Based on daily average trading volume from January 1 to September 30, 1987.
[2] Based on daily average trading volume from January 1 to October 31, 1987.

The extent to which trading in listed stocks and the S&P 500 futures contract was suspended during the critical days of October 19 and 20 was, in light of the pressures brought to bear, surprisingly limited. On the morning of October 19, eight percent of NYSE issues, or a total of 187 stocks, failed to open for trading at or near 9:30 a.m. By 11:30 a.m., 41 of these stocks remained unopened, and by noon all but 25 were trading. During the course of October 19, trading was halted in seven stocks. On the morning of October 20, 90 stocks failed to open promptly and by 11:30 a.m., all but 15 of these were trading. However, during the course of October 20, trading was halted in 175 stocks, including some of the most actively traded issues on the exchange. The S&P 500 futures market was open throughout the day on Monday and halted trading only between 12:15 p.m. and 1:05 p.m. on Tuesday.

While total NASDAQ trading volume increased during the market break, it declined dramatically as a percentage of NYSE volume. From a level of 83 percent of NYSE volume prior to the break, NASDAQ volume dropped to 57 percent of NYSE levels on October 19, and 47 percent on October 20.

The options market had great difficulty trading on both Monday and Tuesday. On October 19, the S&P 100 option went through two rotations before opening for free trading at 12:36 p.m. On October 20, the S&P 100 option again required two rotations to open and the CBOE halted trading for about one and one half hours. Thus, free trading did not begin until 3:23 p.m., which allowed just 52 minutes of free trading.

Thus, all marketplaces, except the options market and, to some extent, the over-the-counter market, remained reasonably available for trading on October 19 and October 20.

However, the performance of financial markets cannot be judged solely in terms of volumes traded. The terms on which trades were executed are equally important. Effective market making mechanisms should sustain fair and orderly trading in several critical respects. At best, market mechanisms should smooth out temporary fluctuations in market prices. At a minimum, they should not exacerbate price fluctuations. Also, trading should be conducted on an equitable basis. Similar orders entered under equal conditions should not be executed on widely different terms. In neither of these respects did market mechanisms perform effectively during the critical days of the October market break.

Price Behavior

Throughout the week of October 12 to 16, market mechanisms for equity-related instruments coped reasonably well with heavy and gradually increasing selling pressure. Even on Friday, October 16, the major stock markets handled a record volume and a substantial selling imbalance without the kinds of extreme price deviations that occurred on the 19th and 20th. Compared to the events of the 19th and 20th, the stock indices also tracked their respective futures contracts reasonably.

In contrast, the price performance of market mechanisms on the 19th and 20th appears to have been notable both in terms of history and the immediately surrounding period of time. At critical times, prices of individual stocks, derivative instruments, and the equity market as a whole, experienced major fluctuations.

This is apparent in the behavior of the major NYSE stock indices during October 19 and 20. In the final hour of trading on Monday, October 19, the Dow fell by 220 points or 11.2 percent. At the open on Tuesday, October 20, most of these losses were made up as the Dow opened 12.1 percent higher, to just below the levels that had been in effect an hour before the close on Monday. By noon on Tuesday, the Dow had dropped back 11.4 percent almost exactly to the level of the close on Monday. When the Dow finally stabilized on subsequent trading days between 1,900 and 2,000, it had recovered all of these additional losses.

Price fluctuations in the futures market were often more violent. For example, in a period of one hour, beginning around 1:30 p.m. on Monday, October 19, the price of an S&P 500 futures contract fell by 12 percent despite a drop of only 7 percent in that hour in the S&P 500 Index. Similarly, on Tuesday, October 20, price fluctuations in the futures market were often more extreme than those of the underlying stock indices. Thus, the S&P 500 contract, which fell about 17 percent in the final two hours of Monday's trading, opened up 10 percent on Tuesday and quickly recovered the full 17 percent loss of the final hours of Monday. At the same time, the S&P 500 Index rallied 9 percent. However, in the next two hours, this entire gain, and more, disappeared as the S&P 500 futures contract fell by 25 percent until trading was halted. The Index dropped 12 percent in the same period. After several more gyrations during the week, the futures market finally stabilized in subsequent weeks near the level it had reached before the sharp midday decline on Monday, October 19.

This pattern of large, but transitory, price changes also characterized trading in individual stocks. For example, two large capitalization NYSE-listed stocks that failed to open on Monday morning until about 10:30 a.m., opened down 17 percent and 19 percent. Within the next hour, the Dow moved down 1.4 percent, and these two stocks rose by 13 percent and 16 percent respectively, recovering roughly 80 percent of their opening losses. On Tuesday

morning, four stocks (out of a sample of 50 large capitalization stocks studied in detail) opened at prices more than 25 percent higher than at their close on Monday. These openings occurred at various times between 9:50 a.m. and 10:50 a.m. and the four stocks opened up by an average of 27.8 percent. By 11:30 a.m., their prices had declined an average of 15.1 percent from the opening levels, eliminating about 55 percent of their opening gains. Patterns of sharp movements in individual stocks, which were rapidly reversed, were common on Tuesday, October 20.

Based on an examination of the average prices at which NASDAQ stocks traded within 15 minute intervals, the setting of prices by a large number of market makers appears to have smoothed out price trends. However, extreme disparities in prices at which individual trades were executed during these intervals were not uncommon. On Monday, October 19, and Tuesday, October 20, the highest reported price at which particular stocks changed hands was sometimes more than 10 percent higher than the lowest reported price of those stocks in the same 15 minute interval. In certain instances, price disparities of more than 20 percent occurred in essentially contemporaneous trades.

Price behavior in the S&P 100 options market is more difficult to assess. In contrast to the stock and futures markets, which handled volumes well in excess of normal, volume in the S&P 100 options market was down significantly on October 19 and 20. Also, as noted above, the S&P 100 option did not trade freely for extended periods of time, especially on Tuesday. Nevertheless, prices at which the S&P 100 options did trade exhibited discontinuous jumps. For a typical example, the S&P 100 November 305 put option traded at $66 in the first rotation on Monday and $58 in the second rotation, a 12 percent difference with no intervening trades (although the second rotation occurred roughly an hour later). Some prices were also disorderly. For example, on Tuesday, the S&P 100 November 250 put opened at 11:31 a.m. at a price of $75. The S&P 100 November 185 put, which should have been substantially less valuable, opened at 11:54 a.m. with a price of $81. In the interven[ing] minute period, the actual level of the S&P 100 Index had changed by less than 2 percent and the S&P 500 futures contract was unchanged.

Equal Access to Trading Opportunities

The extreme volatility of market prices on October 19 and 20 subjected all market participants, and particularly small investors, to capriciously different treatment.

Price variations as large and erratic as those that occurred on October 19 and 20 can be inherently discriminatory. An investor selling stock, or futures contracts, near the close on Monday suffered a loss of 10 to 12 percent compared to investors who sold either an hour earlier or the next morning. In contrast, an investor who bought at or near the open on Tuesday morning paid from 10 to 20 percent more than one who bought either at the previous afternoon's close or two hours later.

In addition to these discrepancies, small investors were at an apparent disadvantage in speed of order execution. Part of the disadvantage stemmed from an understandable difficulty experienced by small investors in reaching retail brokers, which was widely reported but impossible to quantify after the fact. Another part of the problem was, however, attributable to delays and failures of the automated, small-order-oriented processing systems of both the NYSE and the OTC market. The orders of small investors are generally executed through these systems, and small investors tend to have less access to other means of executing orders than do larger investors.

Although the NYSE DOT system was originally designed for small orders, the permitted order size has increased to 30,099 shares for market orders and 99,999 shares for limit orders. Nevertheless, the DOT system remains the most important means of processing small investor orders.

On Monday, October 19, orders for 396 million shares were entered into the NYSE's DOT system. This unprecedented traffic at times overwhelmed the mechanical printers that print DOT orders at certain trading posts, resulting in significant delays in executing market orders and in entering limit orders. These delays meant that market orders were executed at prices often very different from those in effect when the orders were entered. The delays also meant that limit orders may not have been executed because of their limits having been passed by the time the order reached the trading post.

The SOES system, designed to execute trades in the OTC market of 1,000 shares or less, typically handles 12 to 15 percent of trades in OTC stocks traded in the National Market System—although less than 2 percent of share volume. In addition to SOES, some large full-service brokers and wholesalers have comparable proprietary computer systems, which typically execute more than one half of their orders.

On October 19 and 20, two factors limited execution of trades through the SOES and other automated execution systems. First, some large firms—four of the 50 largest on October 19 and 18 of the 50 largest on October 20—did not participate in the SOES system at all during those days, even though they had previously participated. Other firms withdrew for a portion of those days. Second, automatic protection features, designed to protect market makers against potential losses from executing orders where the ask price in the quotation system is not higher than the bid price, shut down trading in many stocks on SOES and the proprietary systems during much of the 19th and 20th. On October 19, these systems were incapable, on average, of trading each of the top 50 NASDAQ stocks 43 percent of the time. On Tuesday, October 20, this figure rose to about 53 percent.

During these shutdown periods, small orders in some of the proprietary systems backed up and, in some instances, were automatically executed in batches when the systems again began to function. Others were executed even later in the day.

These system failures, coupled with natural delays in processing orders at the retail level, meant that small investor orders were executed at random times and, therefore, at prices that varied widely from those in existence when purchase or sale decisions were made. The unequal speed at which trades were executed did not necessarily disadvantage small investors. In some cases, delays in execution—for example, of buy orders entered prior to the opening on Monday—might have been substantially beneficial to some small investors. However, the existence of unequal access would almost necessarily have created at least an appearance of unfairness.

In the futures and options marketplaces, differing levels of access to trading have a significantly different impact than in the various stock marketplaces. Non-institutional participants play only a limited role in the S&P 500 stock index futures market but play a significant role in the S&P 100 options market. The problem of the different treatment of large and small investors in these markets was a consequence of differences in response speeds and access to information. Non-professional participants, who lack access to continuous market information, expect to have continuous opportunities to withdraw from investments in a timely way. Obviously, on October 19 and 20, these expectations were unfulfilled. In the S&P 100 options market on October 19 and 20, everyone suffered from some inability to trade. Individual participants who wrote put options before October 19 and 20 often found themselves either locked into their positions or involuntarily liquidated during these critical two days. Individual participants in the futures market may have suffered substantial losses before becoming aware of what had happened, and even "normal" delays in executing retail orders may have exacerbated these losses.

Market Maker Performance

The active market makers whose performance was analyzed based upon information available to the Task Force include the NYSE specialists, OTC and options market makers, and the "local" traders in the futures market, who play the analagous market maker role. Data was not available to enable the Task Force to analyze the performance of NYSE block traders, who also play an important market making role.

New York Stock Exchange Specialists

The performace of NYSE specialists during the October market break period varied over time and from specialist to specialist. From October 14 through October 16, while the Dow was falling by 10.6 percent, specialists, on balance, purchased approximately $286 million in stock. On October 19, specialists as a whole purchased just under $486 million worth of stock. During the first hour and one half on October 19, specialists bought heavily in the face of unprecedented selling pressure. At this critical time, specialists were willing to lean against the dominant downward trend in the market at a significant cost to themselves. Also, in the price collapse which characterized the final hour of trading on October 19, most specialists again appear to have been net purchasers of stock, although their participation at this time was significantly less extensive, in the face of a greater price decline, than their intervention at the October 19 opening.

These figures, however, conceal marked differences in behavior among specialists. Fully 30 percent of specialists in a sample of 50 large capitalization stocks were net sellers of those stocks on October 19. Further, 10 percent of specialists in that sample finished the day with net short positions in those stocks. Finally, about 10 percent of the openings on October 19 that were down sharply from the closing prices on October 16 were followed by sharp rebounds that eliminated much of those initial losses.

On October 20, roughly one third of the specialists in the 50 stock sample set opening prices which were substantially higher than closing prices on October 19 and which declined rapidly to levels at or near their October 19 closes. These apparent misjudgments of opening prices may have aggravated an already uncertain atmosphere on Tuesday, October 20. On the whole, specialists sold over $450 million in stock, and, in the sample of 50 large capitalization stocks, fully 82 percent of the specialists were net sellers on October 20.

An examination was made of the 31 stocks for which detailed trade data for October 19 and 20 were available. These stocks were classified into three groups: those for which specialists purchased stock in a way that generally tended to counterbalance market trends and smooth price fluctuations (even if they were not always successful); those for which specialists acted in a way that generally reinforced market trends; and those for which specialists took only limited net positions. [This classification was done by the Task Force and differs from the tests used by the NYSE to evaluate specialist performance (see Study VI).] The results of this examination are as follows:

NYSE SPECIALIST PERFORMANCE [1]

	Generally counterbalanced market trends	Generally reinforced market trends	Took limited net positions
October 19	58% (18)	26% (8)	16% (5)
October 20	39% (12)	39% (12)	22% (7)

[1] Based on a sample of 31 NYSE stocks. Figures in parentheses represent the number of stocks from the sample in each category.

The limited nature of some specialists' contributions to price stability may have been due to the exhaustion of their purchasing power following attempts to stabilize markets at the open on October 19.

However, for other specialists, lack of purchasing power appears not to have been the determining factor in their behavior. It is understandable that specialists would not sacrifice large amounts of capital in what must have seemed a hopeless attempt to stem overwhelming waves of selling pressure. Nevertheless, from the final hours of trading on October 19 through October 20, a substantial number of NYSE specialists appear not to have been a significant force in counterbalancing market trends.

OTC Market Makers

Unlike shares on the NYSE, each NASDAQ stock is served by a number of market makers, none of which has either an express or implied commitment to maintain an orderly market. Under these conditions, it is difficult to relate the performance of this market as a whole to the performance of individual market makers.

During the week of October 19, some market makers formally withdrew from making markets. In addition, some market makers ceased performing their function, merely by not answering their telephones during this period. However, it is impossible, on the basis of information available to the Task Force, to assess the extent and impact of this form of non-participation. Other market makers who were willing to trade were unreachable when they were overwhelmed by the volume of telephone orders, many of which normally would have been executed by the automated systems. There were also widespread reports that many market makers, who normally stand ready to buy and sell hundreds and sometimes thousands of shares at their quoted prices, were only willing to fulfill their minimum obligation by buying and selling 100 shares at the quoted price. Another indication of deterioration in market making performance is the withdrawal by some market makers from the SOES system, thus reducing from 1,000 to 100 the number of shares they were obligated to buy or sell.

In addition, bid-offer spreads also widened during this period. For example, on October 20, the larger NASDAQ securities, for which real-time quotations are disseminated, had quoted spreads of ⅛, ¼ or ⅜ only 32.6 percent of the time, compared to such quoted spreads 42.8 percent of the time during the three weeks ending October 16.

"Locals" in the Futures Market

Locals in the futures market, who, like OTC traders, have no formal commitment to stabilize prices, were as a group somewhat more aggressive than normal in taking net positions on October 19.

During the three day market decline from Wednesday, October 14, to Friday, October 16, gross purchases by locals averaged about 48,000 contracts per day—or about 46 percent of total volume. The best available data indicates that locals were net sellers on October 14 and small net buyers on the subsequent two days. Over the three day decline, local net buys were 235 contracts worth about $34 million or less than 0.1 percent of total volume. Thus, locals did not help offset the market decline during those days.

On Monday, October 19, locals purchased 48,487 contracts or 31.4 percent of total volume. Net buys were 1,745 contracts, worth $221 million, representing about 1 percent of total volume. These net buys were generally concentrated in time periods when prices were falling. Only after 2:30 p.m.

did locals not enter the market as net buyers during periods of declining prices.

Moreover, like the stock market, the willingness of locals to lean against prevailing price trends was largely exhausted by the middle of the afternoon on October 19. From 2:30 p.m. to the close of business on October 20, gross local buys amounted to 35,325 contracts or 24.1 percent of total volume. Net buys were a negative 530 contracts, worth $59 million.

In sum, while the locals as a group absorbed some selling pressure, they did not act uniformly and were not able to counterbalance the public selling pressure.

Since the locals do not, and have no responsibility to, absorb significant imbalances in order flow, the futures market functions as an efficient risk transfer mechanism only when the activity of locals is supplemented by market participants, such as speculators and index arbitrageurs. This is especially true with respect to imbalances of the magnitude exhibited during the October market break.

Options Market Makers

The structure of the options marketplace is more important to an assessment of the performance of the options marketplace than is the performance of the options market makers. Options market makers were constrained from maintaining a stable, orderly market because options are inherently susceptible to the largest percentage price changes of all equity products; reliable data about underlying indices was not always available; the exchanges failed to add new strike prices in a timely fashion; extraordinary demands for additional margin were made, even on market makers with hedged positions; and the truncated periods of free trading may have justifiably affected the willingness of market makers to establish positions that they were unsure of being able to liquidate readily. Although the lack of free trading inhibited reasonable price continuity on October 19 and 20, the bid-ask spread in the S&P 100 market shifted frequently but generally remained reasonable during periods of free trading. However, there were numerous price disparities in the options market (see Study VI). On the whole, options market makers did not play an important role in stabilizing their own market, and through their hedging activities may have marginally added to the pressure in other markets.

Clearing and Credit

Difficulties with the clearing and credit systems further exacerbated the difficulties of market makers and other market participants during the market break. Because of the five day settlement rule for stocks, these concerns were less immediate in the stock markets than in the futures and options markets, where settlement is made the next day. However, in the stock market, the unprecedented volume led to an unusually large number of questioned trades. Questioned trades affected 67,673 NYSE trades on October 19 and 62,564 NYSE trades on October 20. That represented 4.02 percent and 4.25 percent of transaction sides on those two days, respectively. As a percentage of transaction sides, these latter figures were 202 and 220 percent above normal, respectively. Uncertainties concerning the ultimate disposition of questioned trades added to other uncertainties regarding the financial condition of specialists and other broker-dealers on October 19 and 20.

Settlement problems in the futures and options markets also contributed to these uncertainties. During the day of October 19, the CME clearinghouse, which is responsible for setting margins on futures contracts, responded to the sharp price decline by making intraday variation margin calls for $1.6 billion. Cash and cash-equivalents covering these margin calls were paid in by "losing" clearinghouse members during the day. According to clearinghouse

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rules, these funds were not paid out to the "winners" until the next day. In addition, variation margin calls, which had been made on Monday morning to cover settlements of Friday's closing positions, were unusually high. Total variation margin calls on Monday morning and during the day on Monday were $2.0 billion.

At the same time, OCC members also faced substantial morning and intraday margin calls to cover the deterioration in the positions of put options sellers, both proprietary and customer. On October 19, the OCC issued four intraday margin calls that collected $1.0 billion from clearinghouse members. In many cases, the OCC clearing members, such as large investment banks, also belong to the CME. Like the CME clearinghouse, the OCC does not pay out excess margin funds on an intraday basis. Thus, OCC and CME clearing members were required to deposit $3.0 billion on Monday, October 19. Some of these deposits were to cover options losses that were offset by futures profits, which resulted in further strains on liquidity.

After giving credit for Monday's intraday margin calls, Tuesday morning margin calls for Monday's trading activity were $2.1 billion for the CME clearinghouse and $0.9 billion for the OCC. Because clearinghouse members are required to meet these calls even before any compensating deposits are received either from customers or clearinghouses, the clearing members were compelled to increase their reliance on intraday credit from their commercial bankers. However, the bankers in question were already concerned about potential losses that their clearing member customers might have suffered in other lines of activity, such as risk arbitrage, block trading or foreign exchange trading. Bankers were also concerned that the clearinghouses would be unable to collect all their margin calls and would be unable to pay in full the balances owed to their clearinghouse members. These concerns apparently resulted in the withdrawal of uncommitted lines of credit to some market participants, restrictions on new loans to some clearinghouse members and a general concern on the part of bankers over extending credit to cover Tuesday morning margin calls.

In this atmosphere of uncertainty, the mere possibility that commercial banks might curtail lending to clearinghouse members was enough to raise questions and feed rumors about the viability of those firms and the clearinghouses. However, timely intervention by the Federal Reserve helped assure a continuing supply of credit to the clearinghouse members. At 8:15 a.m. on Tuesday morning, it was announced that:

> The Federal Reserve Bank affirms its readiness to serve as a source of liquidity to support the economic and financial system.

Notwithstanding these assurances, there were continued difficulties on Tuesday. For example, because of delays in the CME clearing process, two major clearinghouse members with margin collections of $1.5 billion due them on Tuesday did not receive their funds until after 9:00 p.m., many hours later than normal. Meanwhile, these clearinghouse members had already credited customers with balances from their profitable trades and, in many cases, the customers had already withdrawn these balances from the clearinghouse members. OCC's clearing process was also delayed on Tuesday and one of its major clearing members required an immediate capital infusion to meet margin calls.

Although the cash, credit and the timing demands of the current clearinghouse system raised the possibility of a default, none occurred. On the other hand, the mere possibility that a clearinghouse might default, or that liquidity would disappear, contributed to volatility on Tuesday in two important ways.

First, some market makers did curtail their market making activities, especially in the case of block trading where temporary commitments of capital were required, because they feared that loans or credit lines from their commercial bankers might be exhausted or withdrawn. Second, uncertainties about

the activities and viability of the clearinghouses, as well as major broker-dealers, appear to have increased investor uncertainty in the already turbulent atmosphere of October 20.

These uncertainties intensified market fluctuations and the sense of panic evident that day. Had decisive action not been taken by the Federal Reserve, it appears that far worse consequences would have been a very real possibility.

Summary

The degree to which existing market mechanisms can be held responsible for what occurred during the October break depends upon the standards by which these mechanisms are measured. Ideally, the full transition from a Dow level of 2,500 on Wednesday, October 14, to a range between 1,900 and 2,000, where equity markets settled in late 1987, should have occurred in a rational way without sharp, transitory declines or rises.

From October 14 to 16, price movements, trading activity and market maker performance were generally consistent with any reasonable notion of orderly markets, despite a decline of about 7 percent in the major market indices. However, as the rate of decline accelerated on October 19, the efficiency with which the equity market functioned deteriorated markedly. By the late afternoon of October 19, market makers on the major stock exchanges appear to have largely abandoned serious attempts to stem the downward movement in prices. In the futures and options markets, market makers were not a significant factor during that time. As Study VI indicates, price changes and trading activity were highly erratic from late Monday afternoon through most of the day on Tuesday, October 20, as market makers were overwhelmed by selling.

Realistically, in the face of October's violent shifts in selling demand for equity-related securities, a rational downward transition in stock prices was not possible. Market makers possessed neither the resources nor the willingness to absorb the extraordinary volume of selling demand that materialized. Even under conceivable alternative arrangements, market makers would still face limited incentives and resources to manage an absolutely smooth transition in the face of the kind of demand fluctuations which confronted them on October 19 and 20.

The violence of the market movements, both upward and downward, threatened to undermine the integrity of the markets and may have substantially inhibited buyers' participation. At the same time, these market shifts created uncertainty about the solvency of major market making institutions, both directly and through the impact of these rapid price changes on the clearing and settlement systems of the futures and options markets. These factors, in turn, threatened the availability of credit to market makers which could have forced them, at a minimum, to curtail their market making activities and, at worst, to fail. By midday Tuesday, October 20, it appeared possible that a continuing steep decline could have reduced the capital of certain market makers to a level at which they could not obtain sufficient additional funds to continue their participation in the markets. At that point, the major exchanges might have decided to halt trading. The consequences of such a sequence of events, even without a failure of a major broker-dealer or a clearinghouse, could have been severe. Yet, at one point on October 20, such an outcome appeared to be conceivable.

Chapter Six

One Market: Stocks, Stock Index Futures, and Stock Options

Analysis of market behavior during the crucial days in mid-October makes clear an important conclusion. From an economic viewpoint, what have been traditionally seen as separate markets—the markets for stocks, stock index futures, and stock options—are in fact one market. Under ordinary circumstances these marketplaces move sympathetically, linked by a number of forces. The pathology which resulted when the linkages among these market segments failed underlay the market break of October.

Many mechanisms link these marketplaces. The instruments—stocks, stock index futures and stock options—are fundamentally driven by the same economic forces. The same major investment banks dominate the trading among all three segments, both in executing orders for others and for their own accounts. In addition, many of the same institutions are responsible for a large amount of the trading in all three instruments, and particularly in stocks and index futures.

Many of the trading strategies discussed in this Report also serve to link these marketplaces. Index arbitrage provides a direct linkage between the stock and index futures markets. Faced with increasingly chaotic markets in October, portfolio insurers, to the extent possible, abandoned their reliance on the futures markets to execute their strategies and switched to selling stocks directly, underlining the commonality among market function. Another link is the routine use of the futures markets by institutions investing in index funds as a fast and low-cost entry and exit vehicle to the stock market. And, of course, a host of hedging strategies for individual stock positions employ counterbalancing purchases and sales by market makers in these marketplaces.

Market makers in these markets routinely hedge their positions by trading in two markets. For example, market makers in the S&P 100 option hedge by using the S&P 500 futures contract, and some NYSE specialists also hedge their market making activities with futures contracts. Specialists and market makers in futures and options constantly monitor up-to-the-minute prices in other markets on electronic screens. Market makers tend to carry minimal positions from day-to-day, providing liquidity for normal market moves but not for the kind of abnormally large swings experienced in October 1987.

Clearing procedures in the several market segments produce further intertwining. While it is not yet possible to cross-margin positions, proceeds from sales in one market segment may provide funds needed to pay for purchases in another. Fears that a clearinghouse in one market segment might be unable to deliver funds owed to investors can ignite concern throughout the system, as it did in October.

In sum, what may appear superficially to be three separate markets—for stocks, stock options, and stock index futures—in fact behaves as one market.

As the data in Chapter Four make clear, the market's break was exacerbated by the failure of institutions employing portfolio insurance strategies to understand that the markets in which the various instruments trade are economically linked into one equity market. Portfolio insurance theory assumes that it would be infeasible to sell huge volumes of stock on the exchange in short periods of time with only a small price impact. These institutions came to believe that the futures market offered a separate haven of liquidity suffi-

cient to allow them to liquidate huge positions over short periods of time with minimal price displacement.

In October, this belief proved to be unrealistic. The futures market simply could not absorb such selling pressure without dramatic price declines. Moreover, reflecting the natural linkages among markets, the selling pressure washed across to the stock market, both through index arbitrage and direct portfolio insurance stock sales. Large amounts of selling, and the demand for liquidity associated with it, cannot be contained in a single market segment. It necessarily overflows into the other market segments, which are naturally linked. There are, however, natural limits to intermarket liquidity which were made evident on October 19 and 20.

Just as the failure of sellers to understand that they were trading in a single equity market exacerbated the market break, so, too, did the breakdown of certain structural mechanisms linking these separate market segments. Unopened stocks inhibited trading in the derivative instruments. The CME's temporary closing, and the difficulties the CBOE had in opening options trading, interfered with intermarket transactions. Transaction delays through the NYSE's DOT system, and the subsequent decision to prohibit proprietary index arbitrage through the system, also disconnected the market segments.

Under normal circumstances, index arbitrage acts as one of the primary bridges between stock and futures markets. By midday October 19, this arbitrage became difficult. First, transactions backed up in the DOT system, and then, on subsequent days, access to the system was denied to these traders. However, had the system functioned more effectively, this linkage would have been incapable of transmitting the full weight of the estimated $25 billion of selling dictated by portfolio insurance strategies.

Even as direct arbitrage between stocks and futures failed, portfolio insurers provided some indirect arbitrage when they switched from selling futures to selling stocks. The amount of such indirect arbitrage was limited by, among other things, structural and regulatory rigidities. Many insurers were authorized to sell only futures, not stocks, for their clients, and so they continued to sell futures despite the large discount which confronted them. Many institutional stock investors are not authorized to purchase futures contracts, and therefore they could not supply buying support to the market despite the discount.

Differences in margin and clearinghouse mechanisms contributed further to the failure of linkages within the single equity market. Many investors, not fully understanding margin and clearing mechanisms in futures, responded to rumors of payment failures, and the reality of late payments, by the CME clearinghouse, by refusing to buy in the futures market.

The decisions of lenders were also influenced by concerns over inconsistencies among the several markets. The complexity of clearing massive volumes of stocks, options, and futures through separate clearinghouses caused some lenders to hesitate in extending credit. The consequent threat of financial gridlock posed the prospect of major financial system breakdown on October 20, prompting the Federal Reserve to boost investor confidence by promising to inject liquidity into the market.

A number of factors ultimately contributed to the failure of the stock and futures markets to function as one market. As the markets became disengaged, a near freefall developed in both markets. Sellers put direct downward pressure on both markets. As large discounts developed between futures and stocks, those investors who could, switched from selling futures to selling stocks. Those unable to switch continued to sell futures, driving these prices down further. Stock investors not authorized to purchase futures, or fearful of buying them, provided no offsetting buying support in the futures market.

The enormous futures discounts signalled to prospective stock buyers that further declines were imminent. At one point on October 20, for example, the

stock index futures price was "forecasting" a Dow of 1,400. This "billboard effect" inhibited some stock purchases. Moreover, the futures discount made stocks appear expensive, inhibiting buying support for the market.

The pathology of disconnected markets fed on itself. Faced with a surfeit of sellers and a scarcity of buyers, both markets—futures and stock—were at times on October 19 and 20 nearly in freefall.

The ability of the equity market to absorb the huge selling pressure to which it was subjected in mid-October depended on its liquidity. During periods of normal volume, the liquidity provided by market makers and specialists in the separate market segments is sufficient. When abnormal demands confront the equity market, the liquidity in each marketplace is unimportant. Specialists in the stock market and market makers in the futures market go home at the end of each day with, at most, relatively small positions. Investors must depend on the liquidity supplied by participants in the entire equity market. The ability to sell futures is linked to stock market liquidity and vice versa.

The liquidity apparent during periods of normal volume provided by the activities of market makers and active traders on both sides of the market is something of an illusion. Liquidity sufficient to absorb the selling demands of a limited number of investors becomes an illusion of liquidity when confronted by massive selling, as everyone shows up on the same side of the market at once. As with people in a theatre when someone yells "Fire!", these sellers all ran for the exit in October, but it was large enough to accommodate only a few. For these sellers, it takes time to find buyers on the other side of the market. Potential buyers, such as value investors, do not operate by formula and must have adequate time to assemble data and make evaluations before they will commit to buy.

Certain important conclusions should be drawn from the behavior of the markets for stocks, stock index futures, and options in mid-October. First and foremost, these apparently separate markets are in an economic sense one market. They are linked by instruments, participants, trading strategies and clearing flows. Nonetheless, institutional and regulatory structures interfere with the linkages among them and hinder their smooth and efficient operation.

The illusion of liquidity in the futures, options and stock markets contrasts with the reality of the overall equity market's liquidity—the finite capacity of this single, inextricably fused system of markets to absorb major selling or buying demands. Ironically, it was this illusion of liquidity which led some similarly motivated investors, such as portfolio insurers, to adopt strategies which call for liquidity far in excess of what the market could supply.

A number of failures of the one market system contributed to the violent break of the separate market segments in October and pushed the country to the brink of the financial system's limits. It is not possible to prevent investors from being misinformed about the capabilities of markets or to prevent markets from adjusting to the demands put upon them. But it is only prudent to design mechanisms to protect investors, the market's infrastructures, the financial system and the economy from the destructive consequence of violent market breaks.

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Chapter Seven

Regulatory Implications

Stocks, stock index futures and stock options constitute one market, mandating a regulatory structure designed to be consistent with this economic reality.

The failure of these market segments to perform as one market contributed to the violence of the market break in October 1987, which brought the financial system near to a breakdown. To a large extent, the failure was rooted in institutional and regulatory rigidities as well as misconceptions of market participants. That this crisis was precipitated to a large extent by the activity of a few active institutions, illustrates the vulnerability of the financial system and the need for remedial action.

This failure is amenable to reform. To prevent future damage this inextricably interrelated system of markets needs to work smoothly and in harmony. The growth of intermarket trading activities is a phenomenon of the 1980's. The October 1987 experience illustrates that regulatory changes, derived from the one-market concept, are necessary both to reduce the possibility of destructive market breaks and to deal effectively with such episodes should they occur. The guiding objective should be to enhance the integrity and competitiveness of U.S. financial markets.

One Market Mandates One Agency for Intermarket Issues

The analysis of the October market break demonstrates that one agency must have the authority to coordinate a few but critical intermarket regulatory issues, monitor intermarket activities and mediate intermarket concerns.

This "intermarket"—across markets—agency need not take responsibility for all "intramarket"—within one market—regulatory issues. Such matters as securities registration, tender offer rules, and regulation of stock and option trading practices should be left to the SEC, which has the required expertise in these areas. Intramarket issues in futures markets should remain within the purview of the CFTC, which has expertise in the design and regulation of futures contracts and markets.

However, there are a few important intermarket regulatory issues which must be considered jointly and simultaneously across market segments to ensure that the intermarket systems operate harmoniously. These are issues which cannot be decided from the perspective of a single marketplace. Doing so imposes pervasive, unavoidable and possibly destabilizing influences on other related marketplaces and on the interrelated market system as a whole.

Intermarket reform raises two fundamental questions. Who should have the responsibility for intermarket coordination? What are the few crucial intermarket issues which must be assigned to the intermarket agency? The choice of the agency follows from the requirements of the intermarket task.

The October experience demonstrates that the issues which have an impact across related markets, and throughout the financial system, include clearing and credit mechanisms, margin requirements, circuit breaker mechanisms, such as price limits and trading halts, and information systems for monitoring intermarket activities.

It is important to recognize that this approach does not involve imposing substantial new regulatory burdens. For the most part, it involves the reallocation of existing regulatory tasks in a manner designed to conform to the fundamental economic reality that stocks, stock index futures and options are one market.

The Intermarket Agency

The October episode gives a clear view of the characteristics and expertise required to coordinate intermarket issues relating to stocks, stock index futures and options. The most fundamental requirement is broad and deep expertise in these market segments and instruments. However, expertise in individual instruments and market segments is not sufficient. The key requirement is expertise in the interaction of instruments and marketplaces as an integrated system.

Moreover, the October break illustrates that difficulties in stocks and derivative market segments produce dislocations in other financial markets. These, in turn, exacerbate the problem in stocks and derivative market segments. The market break profoundly affected bond and foreign exchange markets as well as the extension of credit by the banking system. Indeed, the confidence and liquidity of the entire financial system were at risk in October.

In addition, global markets were involved. The precipitous decline in the U.S. market was accompanied by a concurrent break in equity markets around the world. Cross-listing of stocks and cross-border investment have strengthened the linkages among global equity markets. During the October break, U.S. market participants were sellers of foreign stocks and U.S. stocks listed on foreign markets. Specialized transactions in U.S. securities and stock index futures were executed in London. United States bond futures markets in London were influenced by the Federal Reserve's injection of liquidity, as were foreign exchange markets. In short, the October market break had ramifications in a wide variety of global financial markets.

Expertise in individual market segments is, therefore, not sufficient for effective response to intermarket crises. The October experience demonstrates that the intermarket agency must consider the interactions among a wide variety of markets encompassing stocks, stock index futures, stock options, bonds, foreign exchange and the credit and banking system, in both domestic and foreign markets.

The critical requirement for the intermarket agency is broad expertise in the financial system as a whole because the greatest potential risk of intermarket failure is to the financial system as a whole, rather than to individual market segments. Financial system expertise is required to deal with a financial system crisis. This expertise is also critical for monitoring and responding to intermarket problems and thus avoiding a financial crisis.

In addition, this intermarket agency needs to serve a broad constituency. Since intermarket activities affect the health of the financial system, this constituency is not dominated by the active market participants so prominent in the October episode. Nor is this constituency limited to individual investors, the majority owners of U.S. equities. The intermarket agency serves the broader constituency of all those who have a stake in the financial system.

Because of its broad constituency, this agency needs the independence to resist demands of partisan political and economic interests, particularly those of active market participants. The stakes are simply too high, the potential adverse consequences of market failure too pervasive.

Independence must be balanced by responsiveness. The intermarket agency must respond to evolving needs of financial market participants. Competitive financial markets are a valuable national asset and the competition for their services is worldwide. Intermarket coordination must be sufficiently flexible to accommodate the innovation in instruments and markets necessary to maintain and strengthen the competitiveness of U.S. financial markets.

Therefore, an analysis of the October experience demonstrates the need for one regulatory body with responsibility for rationalizing intermarket issues.

The task requires broad expertise in the interaction of domestic and global financial markets, financial strength, prestige, independence and responsiveness. The Task Force compared these requirements with alternative regulatory structures.

Self Regulatory Organizations. Self Regulatory Organizations ("SROs"), such as securities and commodities exchanges, are uniquely qualified to regulate intramarket activities. Since they are closest to the action, SROs have the best view of the regulatory needs of their individual market segments. Furthermore, they are motivated by self-interest to preserve the integrity of their marketplace.

Nonetheless, SROs are not well suited for intermarket tasks. They lack the authority to coordinate issues across markets and the resources to deal with intermarket issues. Finally, it is not apparent that they possess either the expertise or the incentive to represent the broader constituencies within the domestic and global financial system.

The Securities and Exchange Commission. Centralizing responsibility for stocks, stock index futures and options within the SEC is attractive on several grounds. The SEC has responsibility for regulating stocks and stock options. Thus, it might seem logical to assign the SEC the responsibility for stocks and all derivative instruments. Moreover, the SEC is structured as an independent agency and has the prestige and influence required for effective regulation.

There are drawbacks to this solution to intermarket regulation. Extending SEC authority to stock index futures might require an investment in expertise necessary to regulate complex instruments new to its regulatory purview. This was necessary for the SEC's regulation of stock options. The expertise needed to regulate stock index futures could be acquired by transferring personnel from the CFTC. Doing so might deplete the CFTC's resources and interfere with its capacity to carry out its other regulatory duties.

Moreover, the SEC's experience and expertise is focused primarily on regulating intramarket activities, not on rationalizing the interactions among markets. To be effective as an intermarket regulator the SEC might have to fund the acquisition of expertise in a wide variety of financial markets, in the credit and banking system, and in international markets.

Joint SEC-CFTC Responsibility. A single regulator, created through joint SEC-CFTC responsibility, could be achieved through a merger of the two agencies, a formal joint committee arrangement, or strict requirements for coordination of intermarket regulatory issues. This alternative would bring together the expertise of the SEC and CFTC with respect to specific types of instruments and intramarket regulatory issues. Nonetheless, combining two agencies with intramarket expertise in their respective market segments would not necessarily produce effective intermarket regulation.

This alternative might not provide the broad financial system expertise needed to oversee the interaction of domestic and global markets as well as the banking system.

Finally, the need for coordinating the few critical intermarket issues does not diminish the importance of detailed supervision of the much wider range of intramarket activities. The addition of intermarket responsibility risks draining resources from the important regulatory tasks that the SEC and CFTC must administer within their respective market segments.

Joint Federal Reserve-SEC-CFTC Committee. The addition of the Federal Reserve would supplement the intramarket expertise of the SEC and CFTC with the broad financial system expertise of the Federal Reserve.

Although this alternative has attractive aspects, there are drawbacks. The committee's effectiveness depends upon resisting the intramarket perspective and constituencies of committee representatives.

Moreover, the most important objective of intermarket regulation is to avoid an intermarket crisis. This requires clear responsibility for ongoing monitoring of intermarket activities and clear authority to act to avoid a crisis. A joint agency committee may not be well-suited for this task. Within a joint agency committee, responsibility and authority could become diffuse. In times of crisis, a committee structure could prove cumbersome, when immediate action would be imperative.

Although there are relatively few intermarket issues to be coordinated, the health of the financial system depends upon effective intermarket regulation. This argues for investing the responsibility in a single responsive agency with the authority to act promptly, rather than assembling a committee representing several agencies.

The Federal Reserve. In most countries, the central bank, as part of its broader responsibility for the health of a nation's financial system, is the intermarket regulator. The Federal Reserve has a primary responsibility for the health of the U.S. financial system. The Federal Reserve works closely with the Department of the Treasury to achieve this goal. This responsibility, and the Federal Reserve's accumulated expertise in discharging this responsibility, are arguments in its favor as the appropriate intermarket agency.

The intermarket crisis in October ultimately required the Federal Reserve to step in to inject liquidity and boost confidence. This rescue imposed costs and constraints on other economic policy objectives. Since intermarket failure and damage to the financial system ultimately fall upon the Federal Reserve, it could be argued that the Federal Reserve should possess the authority to prevent such an intermarket crisis.

Further, in a crisis, the liquidity of the financial system in general, and the banking system in particular, is affected. This is the Federal Reserve's central area of expertise.

The Federal Reserve, with its view of money flows, is experienced in assessing interactions and imbalances among marketplaces, as opposed to intramarket concerns. It has experience in international financial market coordination. The importance of these attributes is illustrated by the October break which involved not only stocks, futures and options but bonds, foreign exchange and international markets.

The Federal Reserve also possesses the other characteristics required of an effective intermarket agency. It has the ability, standing and influence to establish and coordinate consistent intermarket requirements and to inspire intermarket confidence.

Finally, there are precedents for the Federal Reserve as an intermarket agency. The Federal Reserve already has formal responsibility for margin requirements on stocks and stock options. Adding futures margins to the Federal Reserve's purview would be a logical extension of its current responsibilities and is not a major change. Also, the Federal Reserve regulates bank lending to securities market participants.

Despite these advantages, there are drawbacks to the Federal Reserve as the intermarket agency. Intermarket coordination would be a new responsibil-

ity, involving the burden of additional tasks. The Federal Reserve might need to build expertise in intramarket issues in order to carry out its intermarket oversight.

Another problem with the Federal Reserve as the intermarket agency is the danger that market participants may take on more risk in the expectation that the Federal Reserve will bail them out in a crisis. Intermarket responsibility could give the Federal Reserve a role to play before financial system crises develop. However, it would still have no requirement to guarantee the actions of any particular firm.

Balancing the advantage of independence is the need for responsiveness. Of all the major regulatory agencies, the Federal Reserve is perhaps the most independent. Therein lies the potential for a lack of responsiveness to legitimate needs for financial market evolution and innovation. If unresponsive, the Federal Reserve could impair the competitiveness of U.S. financial markets.

The Department of the Treasury. The Treasury Department possesses most of the advantages of the Federal Reserve. It has broad financial system perspective and expertise, international standing in a variety of markets, financial strength, prestige and influence.

However, unlike the Federal Reserve, the SEC, and the CFTC, which are structured as independent agencies, the Treasury is part of the executive branch. Because the Secretary of the Treasury and the Treasury staff serve at the pleasure of the President, it has less independence as a regulatory agency.

A New Regulatory Body. It would be possible to establish a new regulatory body designed to coordinate intermarket issues. This alternative appears to be more expensive than, and inferior to, harnessing the accumulated expertise and standing of an existing agency.

• • •

Guided by the October experience, an analysis of the requirements for effective intermarket coordination demonstrates that expertise in the interaction of markets is the critical requirement. This does not require major restructuring of intramarket regulatory responsibilities. Instead, a few important intermarket issues need to be coordinated by one agency possessing intermarket perspective and expertise.

Intermarket Issues

Intermarket issues are those which systematically and unavoidably impose influences on all markets. The few important intermarket issues which need to be harmonized by a single body include clearing and credit mechanisms, margin requirements, circuit breaker mechanisms such as price limits and trading halts, and information systems for monitoring intermarket activities.

These issues are not the separate concern of individual market segments. The October break illustrates that decisions in one marketplace profoundly affect other marketplaces and the financial system as a whole.

Clearing and Credit Mechanisms

Clearing and credit mechanisms need to be unified. With separate clearinghouses for each market segment, no single clearing corporation has an overview of the intermarket positions of market participants. No clearinghouse is able to assess accurately intermarket exposure among its clearing members and among their customers. Separate clearing also hampers lenders in assessing the risk exposure of market participants and interferes with collateralization of intermarket positions. In the current system, margin flows are based on intramarket positions, and the timing of margin flows differs across clearinghouses. For the sort of intermarket transactions which are the mainstay of these markets, funds must be shuttled from clearinghouse to clearinghouse in the margin settlement process. This process creates imbalances in financing needs and increases demand for bank credit.

The complexity and fragmentation of the separate clearing mechanisms in stocks, futures and options—in conjunction with massive volume, violent price volatility, and staggering demands on bank credit—brought the financial system to the brink on Tuesday, October 20. Some clearinghouses were late in making payments. There were rumors concerning the viability of clearinghouses and market participants. This in turn affected the willingness of lenders to finance market participants under the uncommitted lending arrangements common in the industry. This crisis of confidence raised the spectre of a full-scale financial system breakdown and required the Federal Reserve to provide liquidity and confidence. The complexity of the clearing and credit mechanisms, rather than a substantive problem of solvency, was at fault.

What is needed is unified clearing with stocks, stock index futures and stock options, all cleared through a single mechanism. Unified clearing facilitates the smooth settlement of intermarket transactions, which is the linchpin of these markets. It clarifies the credit risk of lending to participants engaged in intermarket transactions. This would reduce the chance of financial gridlock and the attendant risk to the financial system.

Margin Requirements

Since stocks, stock index futures and stock options compose, in an economic sense, one market, margins need to be rationalized across markets. While margins on stocks and options are already within the Federal Reserve's regulatory purview, futures margins are currently determined by futures exchanges, and thus are not subject to intermarket oversight. Futures margins should be consistent with effective stock margins for professional market participants such as broker-dealers, and cross-margining should be implemented.

Margins have two fundamental characteristics. First, margin requirements affect intramarket performance risk. Margins serve as a performance bond to secure the ability of market participants to meet their obligations. Second, margins represent collateral; thus, margin requirements control the leverage possible in the investment in any financial instrument.

On the first point—the intramarket financial performance control aspect of margin requirements—the concept of margins on futures differs fundamentally from that of margins on stock investments.[1] The daily process of marking-to-market the value of investments, in which futures losers must advance margin to pay futures winners, differs fundamentally from the stock market margin process of advancing payments against a lending formula. Despite low margin requirements, the financial performance control aspect of futures margins has operated in a sound and effective manner on an intramarket basis.

However, margins are more than a financial performance control mechanism. All margin requirements have one aspect in common; margins are

[1] For simplicity, margins on stock options are not considered in detail in this section.

collateral and control the effective economic leverage achievable in any financial instrument.

Because margins on futures are lower than those on stocks, market participants can achieve much greater leverage by investing through futures. With a given initial investment, a market participant can control a much greater equity investment indirectly through futures than through a direct investment in stocks.[8]

The differing level of financial leverage inherent in differing margin requirements warrants concern for two reasons. First, constraints on leverage control the volume of speculative investment activity. Second, leverage translates into financial risk, which extends beyond the performance obligation of a specific transaction and a specific marketplace.

It has been long recognized that margin requirements, through leverage, affect the volume of speculative activity. Controlling speculative behavior is one approach to inhibiting overvaluation in stocks and reducing the potential for a precipitate price decline fueled by the involuntary selling that stems, for example, from margin calls.

The equity action achievable with low margin investment in futures has the potential to increase intermarket leverage for market participants. The resulting financial risk may affect their ability to meet obligations in other market segments. Because of the potentially wide-ranging consequences, the level of leverage within the financial system is a legitimate intermarket concern, rather than the narrow concern of a particular market segment.

The October experience illustrates how a relatively few, aggressive, professional market participants can produce dramatic swings in market prices. Moreover, the mid-October episode demonstrates that such pressures are transmitted from marketplace to marketplace and, at times, pressures concentrated in one market segment can have traumatic effects on the whole system. Low futures margins allow investors to control large positions with low initial investments. The clear implication is that margin requirements affect intermarket risk and are not the private concern of a single marketplace.

Nonetheless, it does not make sense to impose on all futures investors the stock margin requirement for individual investors. The stock index futures market is a professional market. Speculation by individual investors appears not to have been a serious problem in the October decline.

Speculation by professional market participants is, however, a realistic concern. In the stock market, professionals are not subject to the 50 percent margin requirement applicable to individuals. Professionals, such as broker-dealers, can invest in stocks on 20 percent to 25 percent margin. The same professionals can take equivalent positions in stock through the futures market on much lower margin.

To protect the intermarket system, margins on stock index futures need to be consistent with margins for professional market participants in the stock market. Such requirements need not produce equal margins on futures and stocks but should reflect the different structure of the two related market segments. However, similar margins resulting in roughly equivalent risk and leverage between the two market segments are necessary to enforce consistent intermarket public policy objectives concerning leverage and speculation.

Higher futures margins (in line with equivalent stock margins for professionals) need not hamper futures market makers and hedged futures participants. Consistent with the one-market concept, cross-margining should be

[8] For example, on October 19, a professional market participant, who is classified as a hedger, could have taken a position in the equity market by purchasing an index futures contract with an underlying value of $130,000 (500 times the index value of 260) by making an initial investment of $7,500, or approximately 5.8 percent of the contract's value. In order to purchase $130,000 worth of stock, such a participant would have to make an initial investment of about $95,000, or about 25 percent of the value of the stock. Although the futures investor only has to come up with $7,500, the entire $130,000 stock equivalent may be transmitted into the stock market through index arbitrage. Similar leverage is possible on the short side of the market.

allowed. Market participants with an investment in futures should be allowed to receive credit for an offsetting, or hedged, investment in stocks or options. Cross-margining allows margin regulations to focus on the true intermarket risk exposure of participants, rather than focusing myopically on a single market segment.

In view of the October experience, the underlying logic of consistent margins for professional market participants in the one-market system is compelling. If, from a public policy viewpoint, a given margin level for investment in stocks makes sense, should lower margins and the potential for more financial leverage and speculative investment be allowed for market participants investing in stocks via derivative instruments? Should two margin requirements apply to what is, in effect, one market?

Circuit Breaker Mechanisms

Circuit breaker mechanisms involve trading halts in the various market segments. Examples include price limits, position limits, volume limits, trading halts reflecting order imbalances, trading halts in derivatives associated with conditions in the primary marketplaces, and the like. To be effective, such mechanisms need to be coordinated across the markets for stocks, stock index futures and options. Circuit breakers need to be in place prior to a market crisis, and they need to be part of the economic and contractual landscape. The need for circuit breaker mechanisms reflects the natural limit to intermarket liquidity, the inherently limited capacity of markets to absorb massive, one-sided volume.

Circuit breakers have three benefits. First, they limit credit risks and loss of financial confidence by providing a "time-out" amid frenetic trading to settle up and ensure that everyone is solvent. Second, they facilitate price discovery by providing a "time-out" to pause, evaluate, inhibit panic, and publicize order imbalances to attract value traders to cushion violent movements in the market.

Finally, circuit breaker mechanisms counter the illusion of liquidity by formalizing the economic fact of life, so apparent in October, that markets have a limited capacity to absorb massive one-sided volume. Making circuit breakers part of the contractual landscape makes it far more difficult for some market participants—pension portfolio insurers, aggressive mutual funds—to mislead themselves into believing that it is possible to sell huge amounts in short time periods. This makes it less likely in the future that flawed trading strategies will be pursued to the point of disrupting markets and threatening the financial system.

Thus, circuit breakers cushion the impact of market movements, which would otherwise damage market infrastructures. They protect markets and investors.

There are perceived disadvantages to circuit breaker mechanisms. They may hinder trading and hedging strategies. Trading halts may lock investors in, preventing them from exiting the market. However, circuit breakers in a violent market are inevitable. The October market break produced its own circuit breakers: the clogging of the DOT system for NYSE order processing and OTC trading systems; ad hoc trading halts in individual stocks, in options and stock index futures; jammed communication systems; and some less than responsive specialists and market makers throughout markets.

These market disorders became, in effect, ad hoc circuit breakers, reflecting the natural limits to market liquidity. The October 1987 market break demonstrates that it is far better to design and implement coherent, coordinated circuit breaker mechanisms in advance, than to be left at the mercy of the unavoidable circuit breakers of chaos and system failure.

To be effective, circuit breaker mechanisms need to be rationalized across stocks, stock index futures and options markets. Coordination is necessary to

prevent intermarket failure of the kind experienced in October. The intermarket impact of trading halts was vividly illustrated in October. When the NYSE's automated stock order system, DOT, was rendered ineffective, index arbitrage became infeasible, robbing the index futures markets of much needed buying power. From the narrow perspective of the stock market, an inactive DOT system may have appeared beneficial, since it made program selling difficult. However, this contributed to the development of a futures discount which, in turn, put downward pressure on stock prices. Also, trading halts in NYSE stocks interfered with options and futures trading. Indeed, there are numerous examples in the October break of the impact of trading constraints in one marketplace on conditions in other marketplaces.

Trading halts such as price limits are not the private concerns of individual market segments. Because they affect trading throughout the intermarket system, circuit breakers need to be coordinated from a broader intermarket perspective. In a crisis, the need for intermarket information and coordination of trading halts is imperative to avoid intermarket failure. Closing one market segment can have a destabilizing impact throughout the market system. An intermarket perspective facilitates a timely and effective response to crisis.

Information Systems

Intermarket information systems are currently insufficient to monitor the intermarket trading strategies that are so significant to the one-market system. Intermarket monitoring systems are necessary to assess market conditions and to diagnose developing problems.

The October experience illustrates the need for a trading information system incorporating the trade, time of the trade and the name of the ultimate customer in every major market segment. This is critical to assess the nature and cause of a market crisis to determine who bought and who sold. This information can be used to diagnose developing problems as well as to uncover potentially damaging abuses.

The futures clearinghouse and large trader information systems currently allow assessment of trading time by trading customers. The stock exchanges have no system which details trades and trading times by customer. Stock systems include only the broker-dealers involved and whether the broker-dealer acted as principal or agent. Customer information for all market segments is critical to assessing threats to the intermarket system, and all major exchanges should be required to maintain such an information system. The October experience illustrates the need for information systems capable of monitoring conditions throughout the one-market system.

Conclusion

One intermarket system mandates one agency to coordinate the few critical intermarket regulatory issues—clearing and credit arrangements, margins, circuit breakers and information systems. This intermarket agency need not be involved in detailed intramarket regulatory issues in which the SEC, the CFTC and the self regulatory organizations have expertise. The expertise required of the intermarket agency is evident from the nature of the task.

In many respects, the problems associated with the October market break can be traced to intermarket failure. Institutional and regulatory structures designed for separate marketplaces were incapable of dealing with a precipitate intermarket decline which brought the financial system to the brink. Although exchanges may not be pleased with the prospect of intermarket regulation, the Task Force has concluded it is essential to ensure the integrity of financial markets.

It is important to note that, for the most part, this proposal does not involve substantial additional regulatory burdens. Rather, it involves the real-

location of existing responsibility to conform to new economic realities. Intermarket trading activities are an important innovation and contribute to the competitiveness of U.S. markets. These activities have evolved and grown rapidly during the past five years. The regulatory structure has not evolved in a corresponding manner and remains primarily an intramarket activity. This needs to be changed.

The pressing need for coordination of intermarket issues is the chief lesson to be learned from the October experience. Rationalizing intermarket issues is the key to avoiding future market crises and ensuring the efficiency and competitiveness of U.S. markets.

Chapter Eight

Conclusions

On Thursday, October 22, following the stock market break earlier that week, the President announced the formation of the Task Force on Market Mechanisms. Its mandate was, in 60 days, to determine what happened and why, and to provide guidance in helping to prevent such a break from occurring again.

The Task Force concludes that the precipitous decline in the stock market was characterized by large sales by a limited number of institutional investors throughout the interrelated system of markets—stocks, futures and stock options. The massive volume, violent price volatility, and staggering demands on clearing and credit raised the possibility of a full scale financial system breakdown.

The Task Force also concludes that stocks, stock index futures and options constitute one market, linked by financial instruments, trading strategies, market participants and clearing and credit mechanisms. To a large extent, the problems in mid-October can be traced to the failure of these market segments to act as one. Institutional and regulatory structures designed for separate marketplaces were incapable of effectively responding to intermarket pressures. The activities of some market participants, such as portfolio insurers, were driven by the misperception that they were trading in separate, not linked, marketplaces.

The simple conclusion is that the system grew geometrically with the technological and financial revolution of the 1980's. Many in government, industry and academia failed to understand fully that these separate marketplaces are in fact one market.

Nonetheless, that the market break was intensified by the activities of a few institutions illustrates the vulnerability of a market in which individuals directly own 60 percent of the equities. The experience underscores the need for immediate action to protect the equity market and financial system from the destructive consequences of violent market breaks.

Our understanding of these events leads directly to our recommendations. To help prevent a repetition of the events of mid-October and to provide an effective and coordinated response in the face of market disorder, we recommend that:

- One agency should coordinate the few, but critical, regulatory issues which have an impact across the related market segments and throughout the financial system.
- Clearing systems should be unified to reduce financial risk.
- Margins should be made consistent to control speculation and financial leverage.
- Circuit breaker mechanisms (such as price limits and coordinated trading halts) should be formulated and implemented to protect the market system.
- Information systems should be established to monitor transactions and conditions in related markets.

Analysis of the October episode also gives a clear view of the attributes required of an effective intermarket agency. These are: expertise in the interaction of markets, not simply experience in regulating distinct market segments; a broad perspective on the financial system as a whole, both foreign and domestic; independence; and responsiveness.

The Task Force has neither the mandate nor the time to consider the full range of issues necessary to support a definitive recommendation on the choice of the intermarket agency. We are, nevertheless, aware that the weight of the evidence suggests that the Federal Reserve is well qualified to fill the role of the intermarket agency.

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ORRECTED - STEADIER MARKETS ALLOW U.K. RATE RISE NRGP
LONDON, FEB 1 - THE STEADYING OF FINANCIAL MARKETS AFTER OCTOBER'S SLUMP ON WORLD STOCK EXCHANGES HAS LET U.K. AUTHORITIES REFOCUS ON DOMESTIC MONETARY CONDITIONS AND THEREFORE PAVED THE WAY FOR A RISE IN SHORT TERM INTEREST RATES, TREASURY SOURCES SAID.
THEIR COMMENTS CAME AFTER THE BANK OF ENGLAND SAID IT WAS RAISING ITS MONEY MARKET DEALING RATE BY 5/8 POINT TO NINE PCT. BANK BASE RATES WERE EXPECTED TO RISE FROM 8.5 PCT TO 9.0 PCT.
BANK OF ENGLAND OFFICIALS SAID THE SIGNAL TO RAISE INTEREST RATES REFLECTED A RESURGENCE OF INFLATIONARY PRESSURES. ANALYSTS NOTED THE DOLLAR HAS BEEN STRONGER RECENTLY AND STERLING EASIER. AAMM 1500 U.S. DECEMBER CONSTRUCTION SPENDING FELL 0.4 PCT AFTER 1.9 PCT NOV RISE
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JAPAN-SEE INFO 1454

U.K. RATE RISE SEEN AIMED AT DOMESTIC ECONOMY ECSA
BY STEPHEN ADDISON
LONDON, FEB 1 - TODAY'S RISE IN U.K. INTEREST RATES REFLECTS A CHANGE OF FOCUS AWAY FROM THE INTERNATIONAL SCENE AND BACK TO THE SURGING DOMESTIC ECONOMY, ECONOMISTS SAID.
THE DIRECTION WAS EXPECTED BUT THE TIMING CAME AS A SURPRISE, MOST SAID, AND IS FURTHER EVIDENCE OF CHANCELLOR NIGEL LAWSON'S SOPHISTICATED HANDLING OF MONEY MARKETS.
STERLING PERKED UP ON NEWS THE BANK OF ENGLAND SAID IT WOULD OFFER BORROWING FACILITIES TODAY TO THE DISCOUNT HOUSES AT 9.0 PCT FROM THE CURRENT 8-3/8 PCT BUT GOVERNMENT BONDS (GILTS) EASED AROUND ONE POINT.
01-FEB-1352 MON803 MONH ETPE UKHB BONM

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JAPAN-SEE INFO 1456

U.K. RATE =2 LONDON ECSB
THE MARKET RATE WILL ALMOST CERTAINLY BE FOLLOWED LATER TODAY BY A MATCHING HALF-POINT RISE IN U.K. BANKS' BASE LENDING RATES TO NINE PCT, DEALERS SAID.
"THE BANK OF ENGLAND HAS NEVER REALLY BEEN HAPPY WITH AN 8.5 PCT BASE RATE," SAID BRIAN PEARCE OF CHASE MANHATTAN SECURITIES. "BECAUSE OF DOMESTIC CONSIDERATIONS IT FEELS MORE COMFORTABLE WITH NINE."
BASE RATES WERE LOWERED TO THEIR CURRENT 8.5 PCT IN EARLY DECEMBER AMID WIDESPREAD FEARS AMONG THE INTERNATIONAL FINANCIAL COMMUNITY THAT LAST OCTOBER'S STOCKS SLUMP WOULD FOLLOW THROUGH INTO A RECESSION, ECONOMISTS SAID.
01-FEB-1404 MON817

MORE

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JAPAN-SEE INFO 1454

U.K. RATE =3 LONDON ECSC

BUT WHAT WAS GOOD FOR NERVOUS MARKETS WAS BAD FOR BRITAIN'S SURGING ECONOMY, THEY ADDED.

CHEAPER MONEY AND MORE INCENTIVES TO SPEND WOULD ONLY AGGRAVATE AN OVERHEATING TENDENCY, THEY SAID, AND LAST WEEK BANK OF ENGLAND GOVERNOR ROBIN LEIGH-PEMBERTON TOOK THE UNUSUAL STEP OF WARNING ON TELEVISION THAT RATES MIGHT HAVE TO GO UP.

"WE MAY HAVE TO TIGHTEN MONETARY POLICY," HE SAID. "THAT, QUITE FRANKLY, MEANS RAISING INTEREST RATES AND DAMPING DOWN THE HEAT THAT IS GENERATED BY THE ECONOMY AT THE MOMENT."

01-FEB-1404 MON818

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JAPAN-SEE INFO 1456

U.K. RATE =4 LONDON ECSD

CHIEF AMONG THE GOVERNMENT'S CONCERNS IS THE RAPID GROWTH OF MONEY SUPPLY AND SIGNS WAGE RISES ARE BACK ON THE RISE, ECONOMISTS SAY.

OF THE INFLATIONARY PRESSURES, SEVERAL BELIEVE THE MOST SIGNIFICANT IS THE ANNUAL GROWTH IN UNDERLYING AVERAGE EARNINGS, WHICH NOW STAND AT 8.25 PCT A YEAR AFTER HAVING HELD AT 7.75 PCT SINCE LAST APRIL.

COMPOUNDING THE WORRIES IS THE CONTINUING GROWTH IN CONSUMER SPENDING, THE BASIC PLANK OF LAST YEAR'S OVERALL ECONOMIC SURGE, THEY SAID.

01-FEB-1405 MON819

MORE

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JAPAN-SEE INFO 1456

U.K. RATE =5 LONDON ECSE

BUT TREASURY SOURCES MONDAY SAID THE STEADYING OF FINANCIAL MARKETS SINCE THE OCTOBER CRASH HAD LET THE U.K. AUTHORITIES REFOCUS ON DOMESTIC MONETARY CONDITIONS.

SEVERAL ECONOMISTS ALSO SAID THE THE WEAKNESS OF STERLING SINCE LAST WEEK'S DISAPPOINTING DECEMBER U.K. TRADE FIGURES AND THE CONTINUED FIRMNESS OF THE DOLLAR COULD HAVE PROVIDED THE IMMEDIATE IMPETUS FOR TODAY'S MOVE.

"THE RISE SHOWS THE M

SEE INFO 1456

U.K. RATE =5 LONDON ECBE

BUT TREASURY SOURCES MONDAY SAID THE STEADYING OF FINANCIAL MARKETS SINCE THE OCTOBER CRASH HAD LET THE U.K. AUTHORITIES REFOCUS ON DOMESTIC MONETARY CONDITIONS.

SEVERAL ECONOMISTS ALSO SAID THE THE WEAKNESS OF STERLING SINCE LAST WEEK'S DISAPPOINTING DECEMBER U.K. TRADE FIGURES AND THE CONTINUED FIRMNESS OF THE DOLLAR COULD HAVE PROVIDED THE IMMEDIATE IMPETUS FOR TODAY'S MOVE.

"THE RISE SHOWS THE TREASURY SHARES THE BANK'S VIEW OF BRITAIN'S ROBUST GROWTH," SAID IAN HARWOOD OF WARBURG SECURITIES.

01-FEB-1406 MON820

MORE

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JAPAN-SEE INFO 1456

U.K. RATE =6 LONDON FIRST

"IT ALSO SHOWS LAWSON'S INCREASING TENDENCY TO BECOME A MONETARY FINE-TUNER," HE ADDED, REFERRING TO THE PREVIOUS SMALL INTEREST RATE MOVEMENTS LAWSON HAS CALLED "TOUCHES ON THE TILLER" TO DIRECT MARKETS.

IN PAST YEARS, U.K. INTEREST RATES HAVE TENDED TO GO UP IN UNITS OF ONE FULL POINT OR MORE AND DOWN IN HALF-POINTS, HE NOTED.

RICHARD HOLT OF CITICORP SCRIMGEOUR VICKERS ALSO PRAISED LAWSON'S MARKET TOUCH, "HE HAS BEEN REMARKABLY SUCCESSFUL AT MANIPULATING RATES AS HE WANTS AND REFUSING TO BE STAMPEDED," HE SAID.

01-FEB-1407 MON821

REUTER

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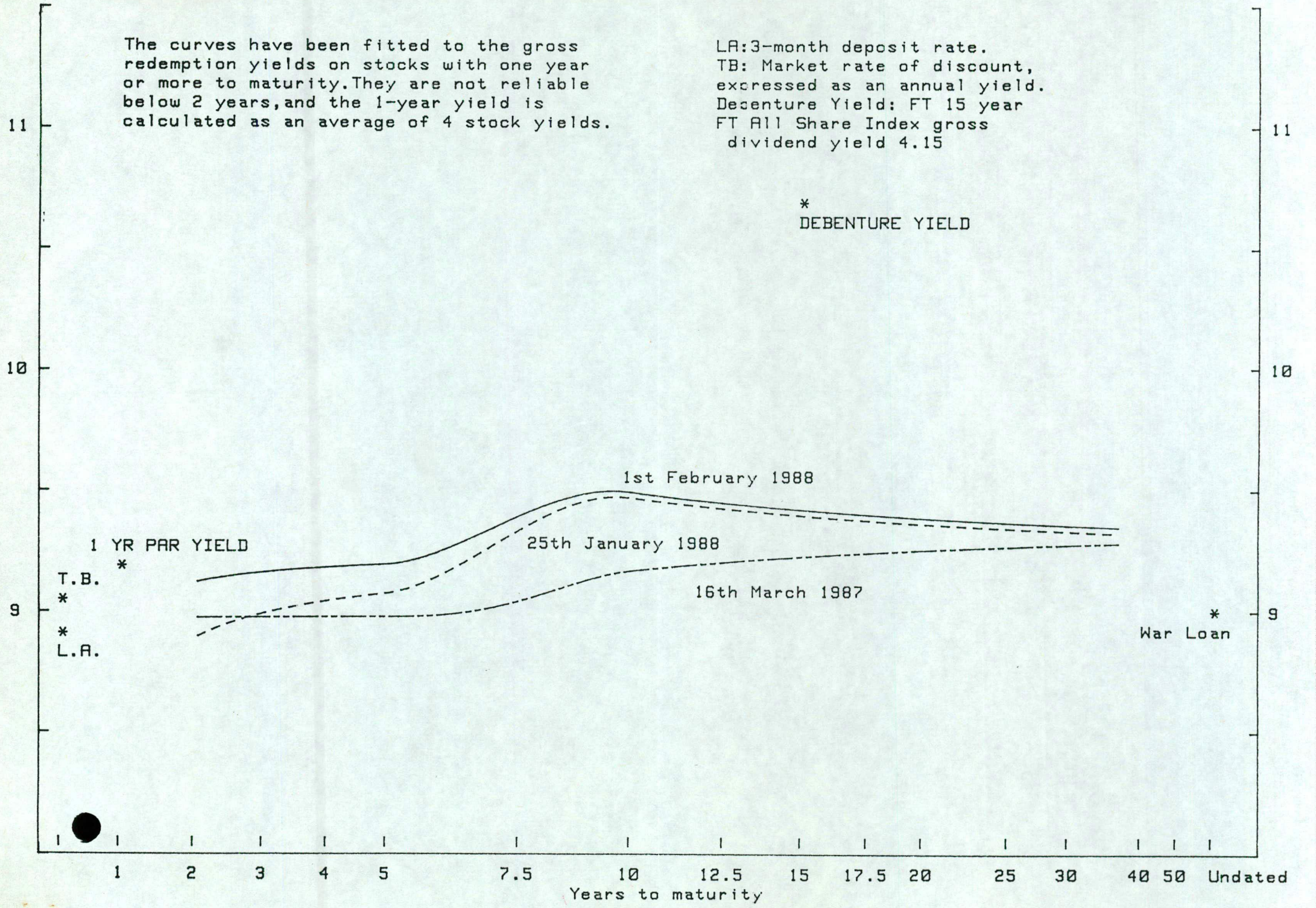
JAPAN-SEE INFO 1456

Per cent Time / Yield Curves of British Government Stocks 1st February 1988



CALCULATED PAR GROSS REDEMPTION YIELDS
ON BRITISH GOVERNMENT STOCKS AT
CLOSE OF BUSINESS ON 1 2 1988

MATURITY (YEARS)	YIELD (PERCENT)
2	9.118
3	9.161
4	9.183
5	9.196
6	9.250
7	9.345
8	9.433
9	9.488
10	9.494
11	9.474
12	9.457
13	9.442
14	9.430
15	9.420
16	9.411
17	9.404
18	9.397
19	9.391
20	9.386
21	9.381
22	9.377
23	9.374
24	9.370
25	9.367

BANK OF ENGLAND

ACTUAL YIELDS ON CERTAIN STOCKS ,
AND CALCULATED PAR YIELDS FOR COMPARISON

FIVE YEAR PAR YIELD				=	9.196
YIELD ON TREASURY	10 %		1992	=	9.269
YIELD ON EXCHEQUER	12	1/4%	1992	=	9.343
YIELD ON TREASURY	10 %		1993	=	9.340
EIGHT YEAR PAR YIELD				=	9.433
YIELD ON EXCHEQUER	10	1/4%	1995	=	9.502
YIELD ON TREASURY	12	3/4%	1995	=	9.588
YIELD ON CONVERSION	10 %		1996	=	9.584
TWELVE YEAR PAR YIELD				=	9.457
YIELD ON CONVERSION	10	1/4%	1999	=	9.579
YIELD ON TREASURY	10 %		2001	=	9.517
TWENTY YEAR PAR YIELD				=	9.386
YIELD ON CONVERSION	9	3/4%	2006	=	9.366
YIELD ON TREASURY	8 %		2009	=	9.211

END

SECRET

MG NOON REPORT

FINANCIAL MARKETS — Monday 1 February 1988

Previous Close	Opening	10 AM		NOON	Oil Price (11 AM)	
74.3	74.0	74.1	£ERI	74.0		
1.7700	1.7500	1.7545	$/£	1.7535	Feb	$16.25
2.9683	2.9645	2.9660	DM/£	2.9660	Mar	$16.35
1.6770	1.6940	1.6095	DM/$	1.6915	Apr	$16.22
127.80	129.35	129.15	Yen/$	129.15		

	UK interbank £		Eurodollars	
8 1/16	(-5/16)	7 day	6 11/16	(-)
8 13/32	(-3/32)	1 month	6 11/16	(-)
8 11/16	(-1/8)	3 month	6 13/16	(-)
9 1/4	(-3/32)	12 month	7 1/4	(-)

* All figures before market dealing rate announcement.
Figures in brackets show change since previous market close

MARKET COMMENT: The dollar continued slightly firmer in New York due to end of month short covering. In the Far East as a result of comments from Mulford saying that further dollar decline was counter productive and Yeuter that the dollar is at levels where US companies are competative the dollar firmed. An advance in US Bonds also helped. The dollar opened firm and remained steady during the early morning. Sterling opened easier on the stronger dollar but after the Banks announcement at 12.09 that they were raising the dealing rate by 1/2% to 9% sterling picked up and continued to rise against both the $ and DM.
The US and Japanese equity markets closed up on the close with the Hong Kong markets closing down. Dow Jones 1958.2 +28.2, Nikkei 23732 +13, and the Hang Seng 2358.3 -51.3. The FTSE100 opened at 1797.3 +6.5 and at 12.10 was 1807.3 +16.5.
The gilt edged market opened firm this morning in line with the US Bond market. Index linked have been strong. Immediatly after the announcement gilt futures fell sharply and the cash market has subsequently lost up to 3/4 at the long end and currently stand at shorts +5, mediums -3, longs -14.

L McRobbie

MARKET INTERVENTION ($m) — OTHER COUNTRIES INTERVENTION ($m)

Overnight	-
Today so far	-
Total	-

GILTS

	Latest market movements	Price change since previous close
Shorts	Steady	+5/32
Mediums	Steady	+12/32
Longs	Easier	+10/32

Gilt Sales since market opening +£36 million

Mainly Index Linked

Futures (Long Contracts) -15/32 (Vol:13361)

* All figures taken before announcement

NAME: Miss R J McRobbie, MG1 Division
TEL NOS: 270 5557/5560

SECRET

PWP

MG NOON REPORT

FINANCIAL MARKETS — Tuesday 2 February 1988

Previous Close	Opening	10 AM		NOON
74.2	74.1	74.2	£ERI	74.2
1.7550	1.7570	1.7585	$/£	1.7600
2.9730	2.9702	2.9719	DM/£	2.9730
1.6940	1.6905	1.6900	DM/$	1.6892
129.57	128.95	128.90	Yen/$	128.67

Oil Price (11 AM)

Feb	$16.07
Mar	$16.20
Apr	$16.12

UK interbank £			Eurodollars	
8 1/4	(-7/16)	7 day	6 3/4	(-)
8 13/16	(-1/16)	1 month	6 3/4	(-)
9 1/32	(-1/32)	3 month	6 13/16	(-)
9 17/32	(+1/32)	12 month	7 1/4	(-)

Figures in brackets show change since previous market close

MARKET COMMENT: The dollar was little changed in New York. In the Far East it eased in early exporter selling, but remained steady during the later part of trading on expectations of the Stoltenberg, Baker and Greenspan meeting later today. The market here is quiet with sterling drifting upwards throughout the morning. The Reserves out at 11.30 had no noticeable effect on this trend.
The US, Japanese and Hong Kong equity markets closed down on yesterday. Dow Jones 1944.6 -13.6, Nikkei 23672 -60 and the Hang Seng 2298.5 -59.1.
The FTSE100 opened at 1772.8 -4.1 and at 12.10 was 1783.4 +6.5.
The gilts market opened easier and has since traded in narrow ranges.

R McRobbie

MARKET INTERVENTION ($m)

Overnight	-
Today so far	-
Total	-

OTHER COUNTRIES INTERVENTION ($m)

Holland +12DM

GILTS

	Latest market movements	Price change since previous close
Shorts	Steady	-4/32
Mediums	Steady	-7/32
Longs	Better	-9/32
Futures (Long Contracts)		-16/32 (Vol:16173)

Gilt Sales since market opening

£0 million

NAME: Miss R J McRobbie, MG1 Division
TEL NOS: 270 5557/5560

D

SECRET

MG NOON REPORT

FINANCIAL MARKETS

Wednesday 3 February 1988

Previous Close	Opening	10 AM		NOON
74.4	74.4	74.5	£ERI	74.4
1.7670	1.7715	1.7720	$/£	1.7650
2.9756	2.9770	2.9796	DM/£	2.9828
1.6840	1.6805	1.6815	DM/$	1.6900
128.30	127.90	128.07	Yen/$	128.37

Oil Price (11 AM)

Feb	$16.00
Mar	$16.25
Apr	$16.15

UK interbank £			Eurodollars	
8 7/8	(+3/8)	7 day	6 3/4	(-)
8 25/32	(-1/16)	1 month	6 3/4	(-)
9	(-1/32)	3 month	6 13/16	(-)
9 1/2	(-1/32)	12 month	7 1/4	(-)

Figures in brackets show change since previous market close

MARKET COMMENT: The dollar was steady and quiet in New York, but in the Far East it eased slightly on market reaction to prime rate cuts. It remained relatively steady during early trading this morning as markets await the second round of the US Bond auction and the outcome of the Stoltenberg meeting, but later picked up on a rumour of a big nuclear explosion in Russia. Sterling opened firmer but has eased slightly during the morning.
US and Hong Hong equity markets closed up on yesterday with the Japanese market closing down. Dow Jones 1952.9 +8.3, Hang Seng 2354.5 +55.9 and Nikkei 23595 -77. FTSE100 opened at 1775.8 +1.4 and is now 1767.7 -6.7.
The gilts market is slightly firmer.

R J McRobbie

MARKET INTERVENTION ($m)

Overnight	-
Today so far	-
Total	-

OTHER COUNTRIES INTERVENTION ($m)

Canada +8$ (2.01.88)
" +12DM "
" +4Yen "

GILTS

	Latest market movements	Price change since previous close
Shorts	Better	+2/32
Mediums	Better	-2/32
Longs	Better	+7/32
Futures (Long Contracts)		+16/32 (Vol:14114)

Gilt Sales since market opening

+£1.3 million

Index Linked

NAME: Miss R J McRobbie, MG1 Division
TEL NOS: 270 5553/5560

mjd 3/96m

Treasury Chambers, Parliament Street, SW1P 3AG
01-270 3000

4 February 1988

cc: PS/Financial Secretary
PS/Economic Secretary
Sir P Middleton
Sir G Littler
Mr Monck
Mr Scholar
Mrs Lomax
Mr Moore
Mr Ilett
Mrs Brown
Parliamentary Clerk
Miss Evans
Mr P S Hall
Mr Call
Mr Neilson
Mr Willis IR

The Rt Hon Lord Young of Graffham
Secretary of State for
Trade and Industry
1 Victoria Street
London SW1H 0ET

LEGISLATION FOR TAURUS

Nicholas Goodison recently mentioned to me his concerns that implementation of TAURUS may be held up by delays in passing the necessary legislation. I was disturbed to hear this. I know that the Stock Exchange's implementation timetable may slip, and that they have come forward very late with legislative proposals. But there must now be a serious risk that the Government will be blamed for the late introduction of TAURUS. We must avoid this.

I am in any case very keen to ensure that TAURUS is introduced as soon as possible. My main concern is to prevent the frustration of our crucially important objective of wider share ownership - TAURUS will produce a major, and long overdue, reduction in share dealing costs for small investors, which would otherwise be prohibitive. It should also reduce the settlement problems that have tended to accompany privatisations. I am concerned that to leave the necessary legislation to the Companies Bill (which may not receive Royal Assent until the end of the Session) would give a false impression of the importance we attach to speedy implementation. I therefore see a strong case for introducing a short, non-controversial Bill under the Second Reading Committee procedure, early in the 1988/89 Session, dealing only with TAURUS, which could receive Royal Assent early in 1989.

This issue is now urgent, both because QL will soon be discussing the 1988/89 legislative programme, and because TAURUS may require stamp duty legislation, which will need to be decided very soon so the Stock Exchange can set up the machinery for collecting the duty.

Finally, as soon as a firm slot has been agreed by QL, I regard it of the first importance that we make a public commitment to have the TAURUS legislation on the Statute book by a specific date. Without that public assurance, I see little chance that the City will take the necessary investment decisions and genuinely gear itself up to implement the new system at the earliest practicable date, which would be a major bolw to our objectives of popular capitalism.

I am sending copies of this letter to the Prime Minister and the Lord President.

Yours ever,
Nigel

NIGEL LAWSON

42aG/NH/1124/8

FROM: M NEILSON

DATE: 1 February 1988

PS/CHANCELLOR

cc PS/FST
Mrs Lomax
Mr Ilett

LEGISLATION FOR TAURUS

You asked for an amended draft letter for the Chancellor to send Lord Young, asking him to give a public undertaking on the timetable for TAURUS legislation. I attach an amended draft. This does not refer in terms to a commitment to July 1989, since, ideally, we would like the legislation in place before then. Accordingly the draft suggests that, once a firm timetable has been agreed with QL, a suitable public undertaking should be made.

Ch/ Redraft not much improved, but content with my doctored version?

MPW 2/2

M NEILSON

AA

I have [illegible] ditto. But sees this not so copies to the Ld President & the PM?

42aG/NH/1124/40

psc type final for CR signature

DRAFT LETTER TO:

The Right Hon Lord Young of Graffham
Secretary of State for Trade and Industry

LEGISLATION FOR TAURUS

Nicholas Goodison recently mentioned to me his concerns that implementation of TAURUS may be held up by delays in passing the necessary legislation. I was disturbed to hear this. I know that the Stock Exchange's implementation timetable may slip, and that they have come forward very late with legislative proposals. But there must now be a serious risk that the Government will be blamed for the late introduction of TAURUS. We must avoid this.

is to prevent the frustration of our ~~true~~ crucially important objective of

At any cost

I am very keen to ensure that TAURUS is introduced as soon as possible. My main concern ~~is to remove barriers to~~ regards wider share ownership - TAURUS ~~should~~ will produce a major, and long overdue, reduction in share dealing costs for small investors, which would otherwise be prohibitive. It should also reduce the settlement problems that have tended to accompany privatisations. ~~Is there a realistic possibility that the Stock Exchange will be ready with TAURUS before the 1988/89 Companies Bill has received Royal Assent? If there is, do you see a case for introducing a short, non-controversial Bill perhaps under the Second Reading Committee procedure, early in the 1988/89 session, dealing only with TAURUS, which could receive Royal Assent early in 1989?~~

Next I am concerned that to leave the necessary legislation to the Companies bill (which may not receive Royal Assent until ?) would give a false impression of the importance we attach to speedy implementation. I therefore see a strong

This issue is now urgent, both because QL will soon be discussing the 1988/89 legislative programme, and

because TAURUS may require stamp duty legislation, which will need to be decided very soon so the Stock Exchange can set up the machinery for collecting the duty.

Finally, As soon as Once a firm slot has been agreed by QL, I see a strong case for an early public announcement of the timing of undertaking on when the TAURUS legislation will be in place. This should establish that it is not absence of legislation that is holding up TAURUS.

I regard it as

I am sending copies of this letter to the Prime Minister and the Lord President.

NIGEL LAWSON

just emphasise that we make a public commitment to have TAURUS legislation on the Statute Book by a specified date. Without that public assurance, I see little chance that the City will take the necessary investment decisions - generally stamp duty is emphasised - in new system at the earliest practicable date, which would be a major blow to our objectives of popular capitalism.

S-E-C-R-E-T

MG NOON REPORT

FINANCIAL MARKETS — Thursday 4 February 1988

Previous Close	Opening	10 AM		NOON	Oil Price (11 AM)	
74.4	74.4	74.4	£ERI	74.4		
1.7677	1.7590	1.7610	$/£	1.7600	Feb	$16.22
2.9812	2.9841	2.9849	DM/£	2.9811	Mar	$16.50
1.6865	1.6965	1.6950	DM/$	1.6938	Apr	$16.40
128.00	128.75	128.75	Yen/$	128.88		

UK interbank £			Eurodollars	
8 11/16	(+3/16)	7 day	6 5/8	(-)
8 7/8	(+1/16)	1 month	6 3/4	(-)
9 1/16	(+1/16)	3 month	6 3/4	(-)
9 1/2	(-1/16)	12 month	7 3/8	(+3/16)

Figures in brackets show change since previous market close

MARKET COMMENT: The dollar firmed in New York and the Far East on technical factors following the US Bond auction. It has remained firm this morning but is now off its highs. Sterling is firmer despite active selling from Middle East sources during the early part of the morning. Market is generally steady.
The US and Hong Kong equity markets closed down on yesterday whilst the Japanese market closed up. Dow Jones 1924.6 -28.3, Hang Seng 2295.3 -59.1 and Nikkei 23709 +113. The FTSE100 opened at 1758.1 -8.2 and at 12.10 was
The gilts market is quietly easier.

R M McRobbie

MARKET INTERVENTION ($m)

Overnight	-
Today so far	-
Total	-

OTHER COUNTRIES INTERVENTION ($m)

Canada +33$ (3.02.88)

GILTS

	Latest market movements	Price change since previous close
Shorts	Steady	-7/32
Mediums	Steady	-11/32
Longs	Steady	-14/32
Futures (Long Contracts)		-25/32 (Vol:12265)

Gilt Sales since market opening

£0 million

NAME: Miss R J McRobbie, MG1 Division
TEL NOS: 270 5557/5560

S E C R E T

S E C R E T

MG NOON REPORT

FINANCIAL MARKETS — Friday 5 February 1988

Previous Close	Opening	10 AM		NOON	Oil Price (11 AM)
74.3	74.4	74.4	£ERI	74.4	
1.7600	1.7640	1.7655	$/£	1.7638	month
2.9806	2.9791	2.9810	DM/£	2.9808	month
1.6935	1.6855	1.6885	DM/$	1.6900	month
128.67	128.45	128.75	Yen/$	128.72	

UK interbank £		Eurodollars
8 3/8 (-1/8)	7 day	6 3/4 (-)
8 3/4 (-1/16)	1 month	6 3/4 (-)
9 1/16 (-)	3 month	6 13/16 (-)
9 9/16 (-)	12 month	7 1/4 (-)

Figures in brackets show change since previous market close

MARKET COMMENT Dollar firm in quiet market in advance of this afternoon's US non farm employment and unemployment figures.Earlier comment by Miyazawa that there was continued G7 action to prevent further dollar fall helped steady it in Far East after some selling on profit taking.Sterling was steady.
US and Far East equity markets close marginally down.Dow Jones1923.6 -1,Hang Sang2292.6 -2.7 and Nikkei 23651 -81.FTSE 100 opened at1765.5 -1.4;now is1746.9 -20.The gilts market is quietly easier.

MARKET INTERVENTION ($m)		OTHER COUNTRIES INTERVENTION ($m)
Overnight	-	Canada +213$, 18DM,23Yen
Today so far	-	-
Total	-	

GILTS

	Latest market movements	Price change since previous close	Gilt Sales since market opening
			+£42.8 million
Shorts	Steady	-	
Mediums	Steady	-4/32	Index Linked
Longs	Steady	-9/32	
Futures (Long Contracts)		-6/32 (Vol:7944)	

NAME: Miss R J McRobbie, MG1 Division
TEL NOS: 270 5557/5560

S E C R E T

SECRET

MG NOON REPORT

FINANCIAL MARKETS — Monday 8 February 1988

Previous Close	Opening	10 AM		NOON
74.2	74.1	74.2	£ERI	74.1
1.7545	1.7470	1.7500	$/£	1.7475
2.9777	2.9786	2.9794	DM/£	2.9777
1.6972	1.7050	1.7025	DM/$	1.7040
128.95	129.40	129.15	Yen/$	129.12

Oil Price (11 AM)

Feb	$16.50
Mar	$16.75
Apr	$16.65

UK interbank £			Eurodollars	
8 1/16	(-3/16)	7 day	6 5/8	(-)
8 15/16	(+3/16)	1 month	6 11/16	(-)
9 1/2	(+5/16)	3 month	6 3/4	(-)
9 7/8	(+3/16)	12 month	7 1/8	(-)

Figures in brackets show change since previous market close

MARKET COMMENT In the forex market, the dollar firmed in New York on Friday night through DM1.70 (a significant chart point) on the back of some technical demand following the publication of weak US employment data and as a consequence a stronger US bond market. It has been steady this morning. Sterling firm against deutschemark on higher interbank rates on expectations of a further rise in base rates. The US, Japanese and Hong Kong equity markets all closed lower. The Dow Jones closed 1910.5(-13.1), the Nikkei closed 23772(-19), the Hang closed 2223.6(-69). The FTSE 100 opened at 1709.7(-28.1) and is now 1693.8(-44). The Gilt market is weak this morning.

Ian Pelmi.

MARKET INTERVENTION ($m)

Overnight	-
Today so far	-
Total	-

OTHER COUNTRIES INTERVENTION ($m)

CANADA +120$, +18DM, +23Yen (on 5.2.)

GILTS

	Latest market movements	Price change since previous close
Shorts	Steady	-22/32
Mediums	Steady	-34/32
Longs	Steady	-36/32
Futures (Long Contracts)		-44/32 (VOL:18406)

Gilt Sales since market opening

£0 million

NAME: Miss R J McRobbie, MG1 Division
TEL NOS: 270 5557/5560

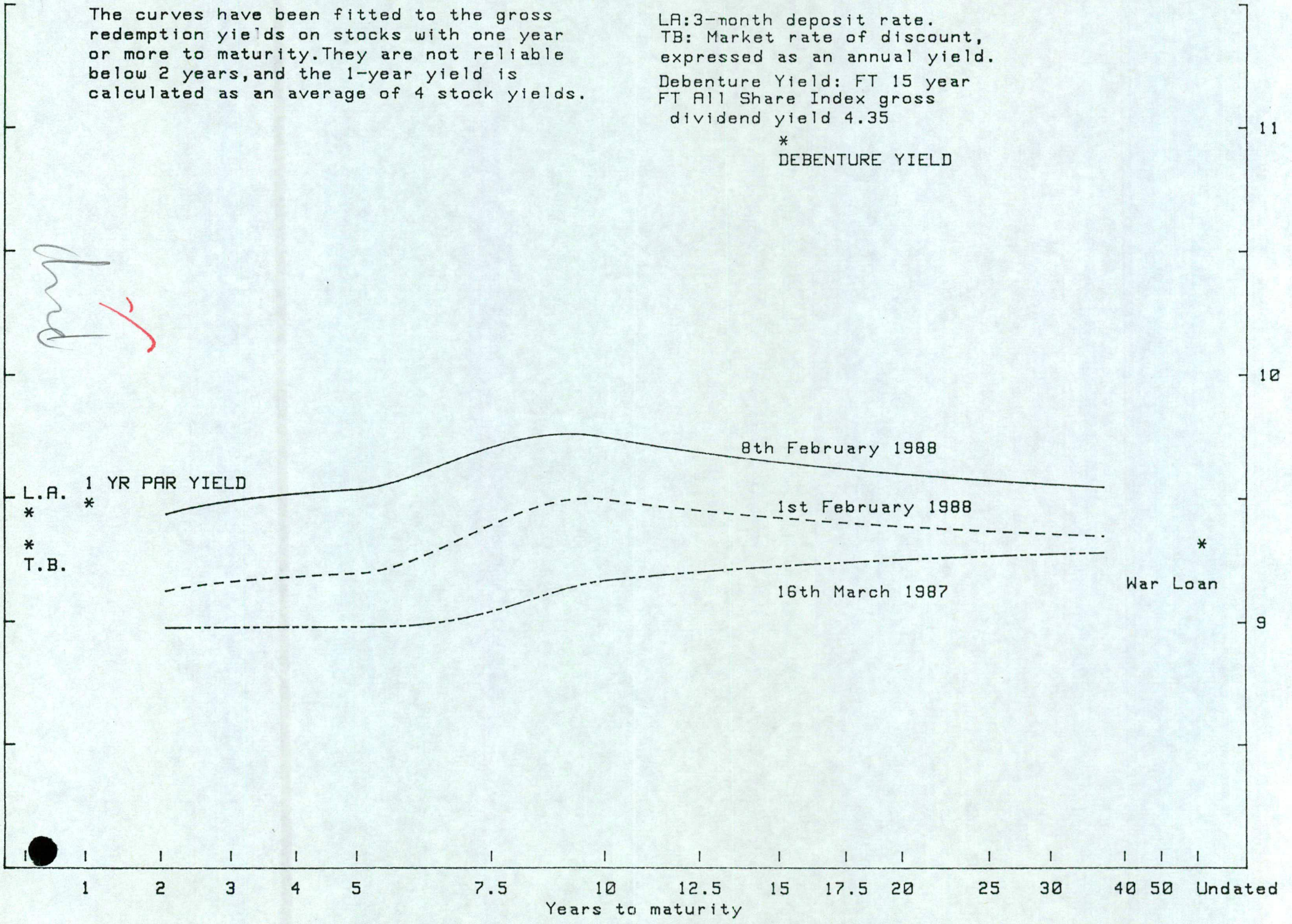
SECRET

Per cent Time / Yield Curves of British Government Stocks 8th February 1988

The curves have been fitted to the gross redemption yields on stocks with one year or more to maturity. They are not reliable below 2 years, and the 1-year yield is calculated as an average of 4 stock yields.

LA: 3-month deposit rate.
TB: Market rate of discount, expressed as an annual yield.

Debenture Yield: FT 15 year FT All Share Index gross dividend yield 4.35



CALCULATED PAR GROSS REDEMPTION YIELDS
ON BRITISH GOVERNMENT STOCKS AT
CLOSE OF BUSINESS ON 8 2 1988

MATURITY (YEARS)	YIELD (PERCENT)
2	9.427
3	9.487
4	9.517
5	9.534
6	9.589
7	9.670
8	9.732
9	9.759
10	9.746
11	9.718
12	9.694
13	9.674
14	9.658
15	9.644
16	9.632
17	9.621
18	9.612
19	9.604
20	9.597
21	9.591
22	9.585
23	9.580
24	9.576
25	9.572

BANK OF ENGLAND

ACTUAL YIELDS ON CERTAIN STOCKS ,
AND CALCULATED PAR YIELDS FOR COMPARISON

FIVE YEAR PAR YIELD			=	9.534
YIELD ON TREASURY	10 %	1992	=	9.595
YIELD ON EXCHEQUER	12 1/4%	1992	=	9.676
YIELD ON TREASURY	10 %	1993	=	9.645
EIGHT YEAR PAR YIELD			=	9.732
YIELD ON EXCHEQUER	10 1/4%	1995	=	9.781
YIELD ON TREASURY	12 3/4%	1995	=	9.835
YIELD ON CONVERSION	10 %	1996	=	9.795
TWELVE YEAR PAR YIELD			=	9.694
YIELD ON CONVERSION	10 1/4%	1999	=	9.815
YIELD ON TREASURY	10 %	2001	=	9.740
TWENTY YEAR PAR YIELD			=	9.597
YIELD ON CONVERSION	9 3/4%	2006	=	9.563
YIELD ON TREASURY	8 %	2009	=	9.383

MG NOON REPORT

FINANCIAL MARKETS — Monday 8 February 1988

Previous Close	Opening	10 AM		NOON
74.2	74.1	74.2	£ERI	74.1
1.7545	1.7470	1.7500	$/£	1.7475
2.9777	2.9786	2.9794	DM/£	2.9777
1.6972	1.7050	1.7025	DM/$	1.7040
128.95	129.40	129.15	Yen/$	129.12

Oil Price (11 AM)

Feb	$16.50
Mar	$16.75
Apr	$16.65

UK interbank £			Eurodollars	
8 1/16	(-3/16)	7 day	6 5/8	(-)
8 15/16	(+3/16)	1 month	6 11/16	(-)
9 1/2	(+5/16)	3 month	6 3/4	(-)
9 7/8	(+3/16)	12 month	7 1/8	(-)

Figures in brackets show change since previous market close

MARKET COMMENT In the forex market, the dollar firmed in New York on Friday night through DM1.70 (a significant chart point) on the back of some technical demand following the publication of weak US employment data and as a consequence a stronger US bond market. It has been steady this morning. Sterling firm against deutschemark on higher interbank rates on expectations of a further rise in base rates. The US, Japanese and Hong Kong equity markets all closed lower. The Dow Jones closed 1910.5(-13.1), the Nikkei closed 23772(-19), the Hang closed 2223.6(-69). The FTSE 100 opened at 1709.7(-28.1) and is now 1693.8(-44). The Gilt market is weak this morning.

Ian Palmer

MARKET INTERVENTION ($m)

Overnight	-
Today so far	-
Total	-

OTHER COUNTRIES INTERVENTION ($m)

CANADA +120$, +18DM, +23Yen (on 5.2.)

GILTS

	Latest market movements	Price change since previous close
Shorts	Steady	-22/32
Mediums	Steady	-34/32
Longs	Steady	-36/32
Futures (Long Contracts)		-44/32 (VOL:18406)

Gilt Sales since market opening

£0 million

NAME: Miss R J McRobbie, MG1 Division
TEL NOS: 270 5557/5560

DATE:

9.0am MARKET REPORT

✓ 9/2/88

	£ERI	$/£	DM/$	DM/£	Yen/$	Yen/£
NEW YORK CLOSE		1.7537	1.7022	2.9851	130.12	228.19
LONDON (8.30am)	74.2	1.7490	1.7040	2.9803	130.00	227.66
9.00am	74.2	1.7485	1.7045	2.9803		

	opening	change from previous close
3 month interbank rates	9 1/4	—
3 month eurodollar rates	6 7/8	—
1 month interbank	8 3/4	+ 1/16

Intervention:

—

Oil 15.85 (-20) 15.97 (-20) 15.92 (-28)

Comment:

THE STOCK EXCHANGE
SIR NICHOLAS GOODISON
CHAIRMAN

LONDON EC2N 1HP
TELEPHONE: 01-588 2355
TELEX: 886557

Ch.
Would you like to see this internal report?
25 12/11

9th February, 1988

Pls ask, & ask RL if we can have a note on N Wilkinson report.

Dear Nigel

A little while ago I sent you a draft of our report on the quality of our markets during October. This will be published on the 16th February but we will be talking to the media about it tomorrow. We have also passed to Rachel Lomax a copy of our internal report written by the Director of Surveillance, Bob Wilkinson, whose role in the surveillance of our member firms during the very difficult market conditions was of the greatest importance in ensuring the stability of the market. I thought you would like to know about this report even if it does not reach your desk.

Yours ever

Nicholas

The Rt. Hon. Nigel Lawson, M.P.,
Chancellor of the Exchequer,
H.M. Treasury,
Parliament Street,
London SW1P 3AG.

G42a/CD/3732/040

FROM: M J NEILSON
DATE: 9 February 1988

CHANCELLOR

cc: PS/Financial Secretary
PS/Economic Secretary
Sir P Middleton
Sir G Littler
Sir T Burns
Mr Monck
Mr Scholar
Mrs Lomax
Mr Peretz
Mr Ilett
Miss Noble
Miss O'Mara
Mr Courtney
Mr Cropper
Mr Call

STOCK EXCHANGE : ANALYSIS OF MARKET CRASH

The Stock Exchange are publishing their analysis of the market crash this Friday (though the press briefing will be on Wednesday). A copy is attached. (Summary only for copy recipients.) You have already seen a copy of the Bank's paper on the market crash, which is largely descriptive rather than analytic, and the Governor's speech on this subject, both of which will also be published in the next few days.

2. Overall it is a workmanlike effort, with some detailed data, based on minute by minute analysis of market movements. It is perhaps a bit thin compared to the reports being produced in the US, but this is largely because much of the information available in the US, for example on what groups were doing the buying and selling, is not currently collected by the Stock Exchange. They are looking at how to improve the information available to them. But the information the report contains will be helpful in assessing the lessons of the crash.

3. The Stock Exchange will inevitably want to make the point that the UK Stock Exchange performed well throughout the market

crash. But they will stress that the report itself is essentially factual, and does not prejudge the question of what if any policy changes may be needed. That, of course, is a matter for the Council. No doubt they will also point out that the UK market is very different from the US, and thus that the proposals put forward over there are not necessarily appropriate over here. In particular, the Chairman and Deputy Chairman have already made it clear they would not favour circuit breakers of any sort.

Main Points

4. The key points are summarised at the beginning of the report. Apart from statistical information, there is also a robust defence against some of the main criticisms that the Stock Exchange has faced. They argue that:

- The screen - based system held up well during the crash, since prices on the screen were, throughout, very close to those at which transactions were actually taking place.

- Market makers moved their prices in response to selling pressure and were not leading the market down.

- Market visibility - ie being able to see prices fall moment by moment on the screen - did not contribute to the speed or extent of the fall (though the evidence on this point only supports a conclusion of not proven).

There is also a major section on the inter-relationship between the equity market and the futures/options market. The main conclusion here is that the derivative product markets in the UK are too small to exercise an important influence, with programme trading virtually non-existent. They did conclude however that the fact that the futures market traded at a substantial discount to the cash market contributed to market expectations of further price falls.

Recommendations

5. The recommendations for action are limited, since the report is being presented as essentially factual. They are also limited

by the scope of the study; in their own words "it is the efficient way in which business is conducted - that is, the expedient execution and settlement of investors decisions to buy or sell securities - which determines just how good a market is" and this is what the report concentrates on. The report does not therefore look at broader questions, about market structure and international linkages such as those raised in the US. Their recommendations for change, which are summarised on pages 43 and 44, are:

- the London markets should encourage techniques, such as index arbitrage, to ensure the cash and futures/options markets do not get out of step.

- Increased capacity and more rapid execution services are needed, so that the system can cope more easily with very large volumes and difficult trading conditions. (This is particularly necessary in the international equities market).

6. You should also note the reference on page 43 to tax factors as contributing to the slow development of the futures/option markets in the UK. We can no doubt expect lobbying for more favourable tax treatment (we have had regular lobbying in recent years on both the tax treatment of investors in futures and options, and on the tax treatment of market makers in those markets).

Implications for Policy

7. Though the report has clearly been written with US developments very much in mind, some of the major issues raised in the US are not dealt with in the report. There are also some specifically UK issues that are not dealt with in the report. These include:

- The need for increased co-ordination of clearing/settlement arrangements across markets (a priority both for the SEC and the Brady Commission).

- The need for consistent margin requirements across different markets.

- International co-operation on issues of market structure (ie clearing and settlement, circuit breakers, margin requirements).

- The account period - does it lead to a dangerous build up in counterparty risk (this is referred to in the Governor's speech, and both the Bank and the Stock Exchange are looking at the case for shortening it, or possibly moving to rolling settlements).

8. All this material will no doubt be discussed at Lord Young's seminar on 26 February (which the Economic Secretary and Mrs Lomax will be attending), and will be on the agenda for one of Sir Peter Middleton's regular meetings with DTI and the Bank, probably in late March.

Bob Blaze

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9/2/88.

CONTENTS

SUMMARY OF KEY POINTS

UK EQUITY MARKET

- The market crash in the week October 19th saw a fall of 22% in the FTSE 100 Index. It ushered in a period of far greater price volatility than has existed previously.
- Volumes in the week of the crash reached unprecedented levels. Customer transactions peaked at over 100,000 bargains per day on October 21st and 22nd. Customer value exceeded £3.5 bn on October 20th.
- Intra market turnover was proportionately lower during the three week period from October 19th to November 6th. However, equity IDBs gained and have retained a considerably higher proportion of intra market business.
- The pattern of customer business during this three week period suggests that individual investors were substantial net buyers.
- Market makers performed a valuable stabilisation function on October 19th when they were net purchasers of UK equities to the tune of £250m. In subsequent days, market makers were able substantially to reduce their positions.
- Despite the declaration of "fast markets" for limited periods and despite the difficulties of keeping pace in a rapidly moving market, there is strong evidence to show that customer business was generally executed at close to SEAQ screen quotes. There is no evidence that market makers screen prices were significantly away from the market for anything but short periods.
- Fears that the high level of visibility of the market may have caused panic among market makers and thus precipitated price cuts appear to have been unfounded. Results show that price falls were associated with selling pressure.

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- During the week of October 19th, over 50% more customer bargains per day were transacted compared with September's daily average. Average daily customer turnover value during the week of the crash was £890 million, 69% higher than September's daily average.
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- Over 70% more customer bargains per day transacted in US equities during the week of the crash.
- Average daily customer turnover in French equities during the week of October 19th was more than two and a half times the September average.

INTER-RELATIONSHIPS BETWEEN MARKETS

- All three markets (cash, traded options and futures) saw record volumes during the crash; traded options traded a record 121,000 contracts on October 21st while LIFFE traded over 9,000 FTSE contracts daily on Monday 19th and Tuesday 20th.
- All three markets traded continuously throughout the week of the crash. Spreads increased significantly in all markets as trading risk increased. In general, the size in which deals could be made decreased. Market quality has recovered in all three markets though equity spreads and option premia are still higher than pre-October levels.
- A significant number of investors were short of FTSE puts at the start of the week. Limited trading on October 16th (due to storms) meant that these investors had no opportunity to close positions before substantial losses had been incurred. These investors were seeking to close positions at almost any price on the Monday and Tuesday.
- Margins were raised in the options market on Tuesday 20th, and also at various times during the week for FTSE futures. This, together with the principle of marking to market, ensured the robustness of the markets by limiting the credit risk associated with highly leveraged instruments.
- Index arbitrage and portfolio insurance trading are not yet well developed in the UK. Trading

difficulties, largely relating to access to the cash market, restricted index arbitrage even further than usual during October 19th and 20th.

- The absence of effective index arbitrage, combined with the perceived difficulties of access to market makers in the equity market, allowed FT-SE to trade at a significant discount.

1. INTRODUCTION

The events of Monday 19th and Tuesday 20th October 1987, more likely to be remembered as "Black Monday" and "Terrible Tuesday", marked the beginning of a new reality. Over the course of those two days, stock markets world wide experienced dramatic price falls, in many cases by as much as 25%. Accompanying these sharp price movements, exchanges round the world, particularly UK and US exchanges, experienced unprecedented trading volumes. Significantly increased volatility is now the norm and investor confidence is greatly reduced. Why did it happen? And how did it happen so quickly?

These are questions which many are asking. In the US, several Congressional committees have been set up to investigate what happened, why, how, and what can be done to prevent similar occurences. Most major exchanges have also initiated studies to understand the events of those two days. Here in the UK, the ISE is also vitally concerned at establishing the facts — what happened exactly?, where were the pressures coming from?, who was involved?, and how did our systems and markets perform in light of such extraordinary events.

As an exchange, at the end of the day, it is the efficient way in which business is conducted — that is, the expedient execution and settlement of investors' decisions to buy or sell securities — which determines just how good a market is. That prices in London fell more quickly or less quickly than other exchanges is merely a reflection of the speed and reaction of our market makers to new information. Prices and price levels are the messages, albeit very important messages, which arise from investor pressures and changes in expectations or perceptions.

The principal task of the Quality of Markets Committee of the ISE is to provide a continuous evaluation of the quality of the Exchange's markets. In this Quarterly, we report on the results of several studies which focus on the activities of October 19th and 20th. As can be appreciated, when one is in the midst of a maelstrom of frenetic activity (as virtually every dealing room in the City will no doubt remember) just trying to understand what was going on would prove difficult enough, let alone understanding why.

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The results of our studies have been structured as follows. Section 2 concentrates on the performance of the UK equity market during the period of the crash. As well as examining trading activity on a minute by minute basis on October 19th and 20th, a much wider view and longer period is taken so that the events of the crash can be seen in perspective.

Much of the price movements in major international stocks followed price changes on their home market, and since a number of overseas exchanges experienced considerable problems in maintaining a continuous market, it was not surprising to see record trading on the ISE's foreign equity market. Details of the performance of this market is outlined in Section 3 of this Quarterly, and particular attention is paid to specific country sectors which experienced very high levels of activity.

The inter-relationships of the underlying cash and derivative markets is a topic which has attracted much attention, particularly in the US and especially since the release of "The Report of the US Presidential Task Force on Market Mechanisms" (the Brady report). In the UK, there is also much interest, especially in light of very significant discounts between the price of FTSE futures and the actual FTSE 100 Index

and the sharp rise in options' implied volatility. Why did such pricing anomalies exist? This question, and other related issues, are the subject of Section 4.

Summary and Conclusions

In general, results indicate that given the record increases in activity and the extent of price movements, trading systems coped remarkably well. The resulting decline in market quality, in terms of much wider price spreads and touches and much lower quotation sizes, is only to be expected given the extraordinary circumstances. While the decline in market quality involves increased costs of dealing, the cost of closing or halting trading would be far greater.

It seems clear that market makers, with their increased capital backing as a result of the Big Bang restructuring of firms, were able to perform a valuable stabilisation role, especially on October 19th when they took on net long positions of around £250 million.

It also appears that, for most of the time during the Monday and Tuesday, screen quotations fairly represented what the market was trading at.

One of the major conclusions arising from our study is that the discount persisted in the futures market because of the lack of techniques, such as index arbitrage, which help to provide convergence between interconnected markets. In addition the futures market is an "open outcry" market and thus is more accessible during volatile periods.

The issue of accessibility to market makers essentially rests with decisions relating to capacity. It is only realistic to expect systems to cope with normal activity levels; as with most industries, the degree of excess capacity to be built into a system depends on a firm's commercial outlook. The introduction of the ISE's automated execution service, SAEF (SEAQ Automated Execution Facility) next year, should release considerable resources within firms to handle a much greater proportion of higher value transactions. SAEF will enable member firms to execute client orders of up to 1,000 shares at the touch of a button, thus reducing the time of execution and settlement of small transactions.

Finally, a note must be made of the lack of certain information which would have greatly assisted in determining exactly from where the selling pressure was coming. While the ISE has records of every transaction conducted on its markets by it members, one piece of information which is not captured is the type of client who is dealing. Readers of past Quality of Markets Reports will recall the results of detailed surveys of transactions which provide analyses of business by a number of parameters, one being client type. Such information, which is considered vital for marketing and planning within the industry, can only be gained with the co-operation of firms who submit coded returns of a sample of transactions over a period of time.

This information could be captured in the same way as other bargain details are collected using the Central Checking System. This requires member firms to record details relating to each transaction — e.g. time and date of deal, issue traded, buy or sell, number of shares dealt, dealing price, etc, — which are entered into the Checking System to be matched. If Checking details were to include an indicator for client type, then we would have a most invaluable tool from which to provide many more answers.

— £70m at the outside. Taking 1700 as a representative futures price at that time, this means that perhaps 1200 to 1700 contracts can be attributed to arbitrage. It is estimated that about £100m dealt in FT-SE futures was attributable to portfolio insurance strategies. This means that arbitrage and portfolio insurance strategies together cannot have accounted for more than 10% of LIFFE's volume in the week of the crash. In relation to the cash market this represented a minuscule proportion (on a comparable basis, UK equity trading was £6.8 billion in that week).

Only a very limited amount of activity was seen by traded options market makers' hedging, since the volatility of the futures basis deterred them from doing so. On the other hand, equity market makers made increased use of futures. The uncertainty and risk of taking on stock may have been the main reason for equity market makers, who normally do not use futures as a hedge, to use them on this occasion.

There were still locals in the pit, and there seems to have been reasonable trading activity. However, some traders commented on the difficulties of trading associated with the volatility in basis. Equally, however, they noted that substantial business could still be executed.

In summary then, during the crash the balance of trade seems to have changed. There was less traded options hedging, but more equity market maker hedging and only a limited amount of arbitraging.

Inter-relationships and Concluding Remarks

We have examined in detail the types and levels of activity on the UK equity market and the two derivative markets, the LTOM and LIFFE. The inter-relationships which exists would tend to suggest that selling pressures on all three markets was exacerbated. Let us explain more fully.

Firstly, we have seen that the mechanisms which link the futures and cash markets in the US are not used to any significant level in the UK, and also the size of the futures market in relation to the underlying cash market is smaller than in the US. Portfolio insurance is in its infancy in the UK — insured funds are certainly less than £1/4 billion. While index arbitrage occurs in the UK, difficulties of executing complex trades in the cash market at guaranteed prices, together with special features of FTSE futures and UK taxation law, combine to limit its extent.

While the destabilising impact of portfolio insurance and index arbitrage were not an issue in the UK, it is another thing to suggest that the discount to which FTSE futures went had no effect in the cash market. Clearly, the existence of very large discounts on FTSE futures, which were broadcast throughout equity dealing rooms of many member firms throughout the City, must have unnerved the cash market traders.

Normally some arbitrage would have been in operation to keep the markets in line, but during the crash period this was not the case. The normal arbitrageurs were not in evidence as it had ceased to be a "riskfree" trade because of the pace of price changes and difficulties in executing orders. Of the handful of people who did undertake arbitrages, buying the futures and selling the stocks, they found the futures slightly higher than was indicated on the screen, and the index some 30 to 40 points lower by the time they had dealt in sizes up to £5 million. A selling order of this size in the equity market may have taken much longer to execute given the reduction in market makers quotation sizes and difficulties of access.

It is important to stress that major futures strategies, particularly index arbitrage, was only in evidence in a very limited way. It is because they were limited (and thus not effective in erasing pricing anomalies) that the discount between FTSE futures and the cash index reached the proportions it did.

The question remains, "why did the discount occur?". It is too simplistic to say that the heavy selling pressure in the futures market caused the discount without asking why sellers were willing to accept a discount of typically 5% to the quoted index. Two reasons may explain this.

It could be that sellers did not believe they could deal, especially sell, in the cash market immediately. Expecting further falls and unwilling to risk waiting, investors decided to liquidate their positions by selling the FTSE futures instead. Bearing in mind the size of the discount at certain times, such a rationale would imply that these sellers must have had extremely poor expectations of the time which would elapse before they could trade the underlying stocks.

Alternatively, sellers may not have believed the cash market prices were real and available for trading. Believing this to be the case, investors may have thought that the futures price was indeed the "real" market price, and thus continued selling the future.

In fact, as our research has shown, SEAQ prices were generally a good indicator of trading prices. On the question of accessibility to equity market makers to execute orders, we can only point to the record volumes of transactions, of which a higher proportion than normal were customer orders as opposed to intra-market business, which suggests that market makers were indeed providing a continuous market. However, the experience of those trading simultaneously in both the cash and futures markets suggests that, because of access difficulties in the cash market, some investors may have chosen to deal in a discounted market because it was more accessible and so provided certainty of execution.

What we do not know is how many orders did not reach the market makers for whatever reasons. We have already seen that record volumes of business was transacted on all markets. The issue of accessibility essentially rests with decisions regarding capacity levels. Like most industries, decisions need to be made concerning how much capacity to build into a system to cater for abnormal peak times.

If it is true that a significant number of customer orders failed to be executed swiftly or executed at all because of capacity constraints — there is only a finite number of market makers, dealers and telephones — then it is a real concern for the ISE as this affects not only the immediate, but also much longer term, quality of its markets.

Given the present capacity of the trading system and the current size of the

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industry, our investigations into the efficiency and effectiveness of the ISE's trading systems reveal that on the whole the systems coped well under the exceptionally high level of activity and pressures; despite the widening of price spreads and the reduction in size, a continuous two way market was maintained at all times during the trading day. Despite fast moving conditions, the SEAQ system provided quotations which fairly represented the market.

Decisions regarding individual member firms' operating capacity in terms of human and technological resources are matters for firms themselves to make based on their own commercial outlook. From an exchange's point of view, it is essential that policies and plans are developed and implemented which aim to minimise adverse conditions which may impede the efficient execution of business for the investing community at large.

While it is not for an exchange to judge whether investors' decisions to buy, sell or hold securities is right or wrong, it is the function of a good quality exchange to provide the mechanism which can carry out investors' decisions in the most cost efficient and effective way. In doing so, the market mechanism should be able to accurately reflect such actions and sentiment via the prices which it transmits, and in addition to this, it should be able to absorb and reflect new information as quickly as possible.

Our studies into the efficiency and effectiveness of London's market mechanisms have revealed two distinct areas where development must take (and is already taking) place to help minimise the difficulties experienced during the crash.

Firstly, it seems clear that the existence of wide pricing anomalies between the cash and derivative markets demonstrates the need for the London markets to encourage techniques, such as index arbitrage, which help to provide convergence in these markets so that an efficient means of risk transfer can be achieved.

Secondly, there is a need to provide more speedy execution services so as to increase the cash market's capabilities to execute (and settle) transactions more efficiently and, in turn, to increase its capacity overall via increased productivity. To this end, the ISE is well advanced in the development of its automatic execution service, SAEF (SEAQ Automated Execution Facility), which is expected to be in operation by next year. SAEF will enable customer orders of up to 1,000 shares in SEAQ stocks, placed with member firms of the ISE, to be executed at a touch of a button. Since over half the transactions on the ISE are for 1,000 or less shares, the implementation of SAEF will considerably release resources within firms to handle a much greater proportion of higher value transactions.

To conclude, there can be no doubt that what we have now is, not a group of separate markets with occasional overlapping but — since the links between markets are so strong — one, very complex market. This one market encompasses not only different assets within the UK but also covers international markets. This underlines the need to understand clearly the impact of changes — regulatory, procedural, technical and structural — in one area of the market on other areas. For example, while SAEF is seen mainly as an enhancement to the cash market, it may ultimately simplify arbitrage between interconnected markets and thus will have an impact on derivative markets. The results of our study, and studies from other exchanges and regulatory authorities, demonstrate that there is a long way to go before we fully understand and accept the implications of this single market phenomenon.

9/2/88.

QUALITY OF MARKETS QUARTERLY

Winter 1987/88

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One of the major conclusions arising from our study is that the discount persisted in the futures market because of the lack of techniques, such as index arbitrage, which help to provide convergence between interconnected markets. In addition the futures market is an "open outcry" market and thus is more accessible during volatile periods.

The issue of accessibility to market makers essentially rests with decisions relating to capacity. It is only realistic to expect systems to cope with normal activity levels; as with most industries, the degree of excess capacity to be built into a system depends on a firm's commercial outlook. The introduction of the ISE's automated execution service, SAEF (SEAQ Automated Execution Facility) next year, should release considerable resources within firms to handle a much greater proportion of higher value transactions. SAEF will enable member firms to execute client orders of up to 1,000 shares at the touch of a button, thus reducing the time of execution and settlement of small transactions.

Finally, a note must be made of the lack of certain information which would have greatly assisted in determining exactly from where the selling pressure was coming. While the ISE has records of every transaction conducted on its markets by it members, one piece of information which is not captured is the type of client who is dealing. Readers of past Quality of Markets Reports will recall the results of detailed surveys of transactions which provide analyses of business by a number of parameters, one being client type. Such information, which is considered vital for marketing and planning within the industry, can only be gained with the co-operation of firms who submit coded returns of a sample of transactions over a period of time.

This information could be captured in the same way as other bargain details are collected using the Central Checking System. This requires member firms to record details relating to each transaction — e.g. time and date of deal, issue traded, buy or sell, number of shares dealt, dealing price, etc, — which are entered into the Checking System to be matched. If Checking details were to include an indicator for client type, then we would have a most invaluable tool from which to provide many more answers.

2. UK EQUITY MARKET

- The market crash in the week October 19th saw a fall of 22% in the FTSE 100 Index. It ushered in a period of far greater price volatility than has existed previously.
- Volumes in the week of the crash reached unprecedented levels. Customer transactions peaked at over 100,000 bargains per day on October 21st and 22nd. Customer value exceeded £3.5 bn on October 20th.
- Intra market turnover was proportionately lower during the three week period from October 19th to November 6th. However, equity IDBs gained and have retained a considerably higher proportion of intra market business.
- The pattern of customer business during this three week period suggests that individual investors were substantial net buyers.
- Market makers performed a valuable stabilising function on October 19th when they were net purchasers of UK equities to the tune of £250m. In subsequent days, market makers were able substantially to reduce their positions.
- Market depth was stable on October 19th but fell sharply at the opening on the 20th. Market makers' spreads widened sharply at the same time.
- Despite the declaration of "fast markets" for limited periods and the difficulties of keeping pace in a rapidly moving market, there is strong evidence to show that customer business was generally executed at close to SEAQ screen quotes. There is no evidence that market makers screen prices were significantly away from the market for anything but short periods.
- Fears that the high level of visibility of the market may have caused panic among market makers and thus precipitated price cuts appear to have been unfounded. Results show that price falls were associated with selling pressure.
- We are left with an open verdict on the impact of foreign selling of UK stocks. Evidence from depositories of ADRs suggest that US investors were not disproportionately heavy sellers of UK stocks. It is not possible to reach firm conclusions on actions by investors from other countries.
- The weeks since the crash have seen a gradual but steady recovery in market quality. Market makers' spreads are generally narrowing and the depth of the market is generally increasing. However, continued volatility makes the market more risky than before and until this volatility declines, market quality will remain lower than before the crash.

Introduction

The market events of October 19th and 20th were the first occasion for the new market system, then almost one year old, to be subjected to significant and substantial selling pressure. By any standards, the extreme levels of activity and conditions produced the most bracing experience which a market could face. Like most major markets which are conducting research into the performance of their market mechanisms during this period, we are particularly concerned with certain features of our own market.

Our concerns relate less to the interaction between cash and derivative markets, on which many US researchers have focused, (though the possibilities for interaction exist and these are studied in Section 4 of this Quarterly) – we are more interested in the impact of market visibility on the stability of our market. What are the effects of a continuous, highly visible display of market makers' price quotations, combined with a high level of trade publication on market activity? Do these features bring a tendency for market participants to over-react?

This study is structured to cover these issues. Beginning with a look at the price movements experienced during and immediately after the crash, we shall examine the structural features of the UK equity market during that period. The next two sections examine market quality, analysing market depth and price quality respectively. This is followed by a discussion of the impact of visibility and internationalisation, followed by a look at how market quality has recovered in the period after the crash.

Generally speaking, our investigations cover the period from October 12th to November 13th, 1987, with particular attention paid to the events of October 19th and 20th.

Market Price Movements

Equity prices world wide experienced sharp falls as a result of the mid-October crash. Over the one week period, Wednesday 14th to Tuesday 20th October, the FTSE 100 Index fell 22%, the Dow Jones Industrial dropped 24%, the Nikkei-Dow 18%, Germany 15% and France 14% (Table 2.1 shows comparative figures). The next two weeks saw some recovery in New York and Tokyo but prices continued to decline in London. In this two week period, European exchanges, which had to some extent been shielded from the slump of the first week, fell significantly and continued declining to the year end. The recovery experienced in Tokyo was reversed as the Nikkei-Dow fell significantly further to the year end, while both New York and London stabilised.

With hindsight, a downward trend is now apparent in most markets since peaking around July and August. Market indices world wide have been moving down more or less gently since then. There have been some significant announcements (eg. the publication of worse than expected trade figures which moved FTSE down 56 points on August 6th), but nothing to compare with the movement experienced on October 19th and 20th.

New York had fallen sharply in the week to October 16th, the biggest fall coming on Friday 16th when trading in London was nominal due to extreme, adverse weather conditions. On Monday 19th, FTSE opened 137 points (6%) down on the previous trading day's close (Thursday 15th October) and fell a further 113 points (5%) during the day. On Tuesday 20th, FTSE opened another 186 points (9%) down, falling a further 65 points (3%) during the day. Wednesday 21st saw FTSE open 113 points up and a further 29 point rise during the day, but this recovery in London and elsewhere was shortlived.

As well as the decline in prices, extreme volatility became a feature of the market. To illustrate, on October 20th, FTSE saw a high of 1985.1 and a low of 1748.2 — a movement of 237 points (though the net open to close change at 65 points was far less). Figure 2.1 illustrates the daily FTSE range for the last 6 months of 1987. The sharp rise in volatility is very obvious in the post-crash period compared to earlier months.

More recently, the level of volatility appears to have eased somewhat; however, one day movements are still frequently larger than on even the most volatile days before the crash. During November and December, there were 6 days when the close to close movement was more than 50 points. This increase in volatility has important implications for market quality since it represents a higher level of risk. Higher risk raises the cost of risk transference, shown most clearly in wider spreads made by market makers and the higher premiums for traded options. Both features are discussed in detail later on.

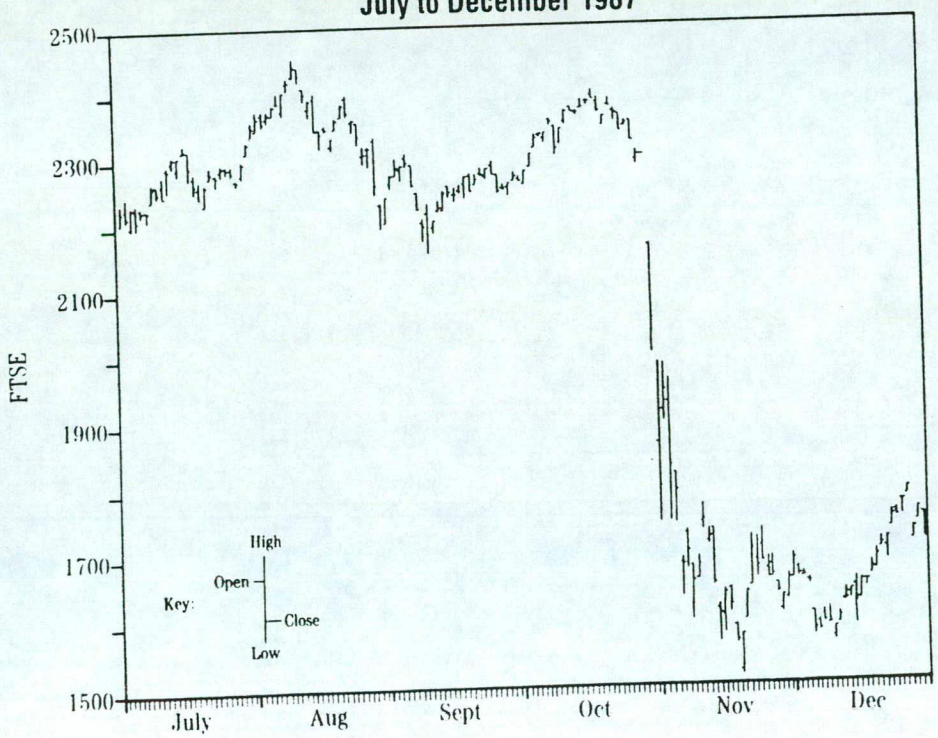
There have also been suggestions that both the extent of the fall in London and the ensuing volatility are a direct result of specific features of the London market — in particular, the high visibility of the market and the high level of overseas holders of UK stocks. These features are also examined in detail later in this report.

It is true that there were special features in the UK market which may have exacerbated the fall and certain features elsewhere which might have softened the crash:

TABLE 2.1:
COMPARATIVE CHANGE IN PRICE INDICES (%)

	14.10.87 — 20.10.87	*14.10.87 — 3.11.87*	*14.10.87 — End year 87*
London	— 22.4	— 28.9	— 26.3
New York	— 23.7	— 18.6	— 17.8
Tokyo	— 17.8	— 13.5	— 19.1
Germany	— 14.6	— 23.6	— 33.2
France	— 14.3	— 19.7	— 27.5
Australia	— 27.8	— 36.4	— 38.9
Hong Kong	Closed	— 43.3	— 40.4
Toronto	— 12.4	— 19.2	— 15.0
Morgan Stanley Capital World Index	— 20.6	— 16.9	— 16.1

Figure 2.1 FTSE DAILY HIGH-LOW-OPEN-CLOSE
July to December 1987



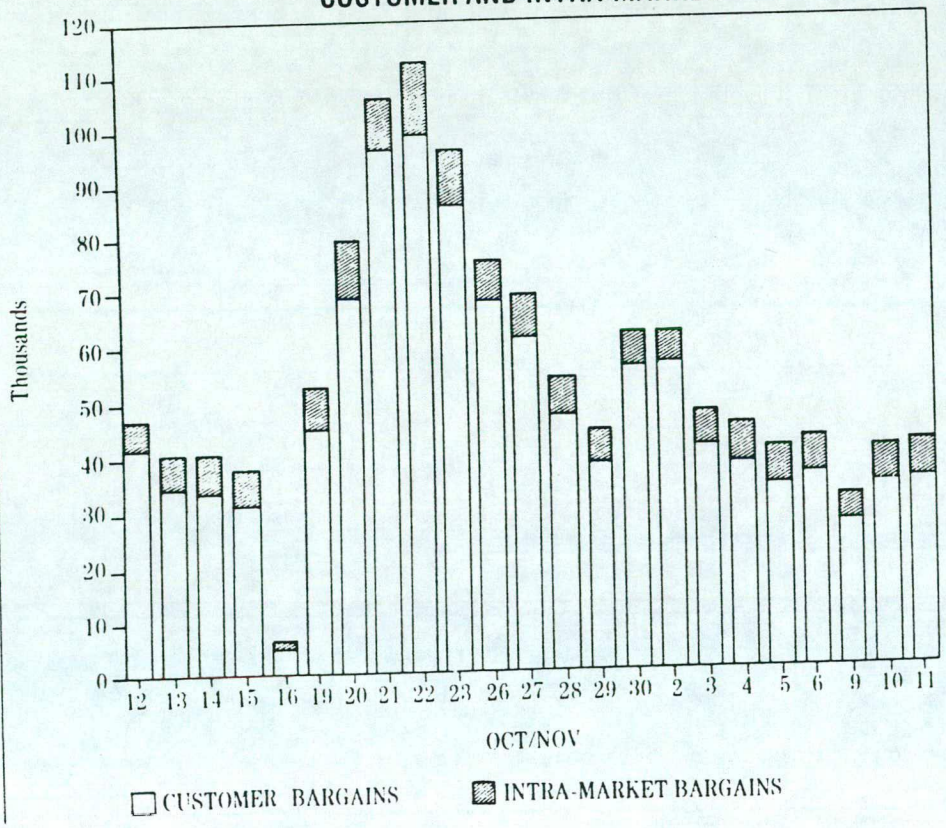
- UK institutions may have been less willing and less able to take on further equity after the crash even though, in valuation terms, equities may have seemed good value. This possible reluctance was a likely result of two factors. Firstly, UK institutions already hold a higher proportion of equity in their portfolio compared to US or Japanese funds. Over the past year, while the market has risen substantially, UK institutions continued to invest particularly heavily in equities (see table 2.2). Secondly, considerable institutional cash has been absorbed in recent underwritings (including BP) and this may have left them short of liquid funds.
- Reports from the US suggest that listed companies have taken the opportunity to reduce their takeover vulnerability by buying back stock when the price falls sufficiently. As this practice is not widely used in the UK, although it has become more popular (especially among Property Companies and Investment Trusts), this type of support was not present in the London securities market.
- Use of derivative products (futures and options) is less highly developed in the UK than in the US. Discussions continue as to whether the impact of these markets in the US exacerbated or softened the crash. Either way, the possible destabilising impact of derivative markets has been less of an issue here in the UK than in the US.

TABLE 2.2:
PROPORTION OF UK INSURANCE COMPANIES' AND PENSION FUNDS' PORTFOLIOS INVESTED IN EQUITIES

Invested in:	*1982* (end period)	*1983*	*1984*	*1985*	*1986*	*1987* Q3(e)
UK Equities	34%	35%	39%	39%	41%	44%
Overseas Equities	8%	10%	10%	11%	12%	14%

(e) = estimated
Source — Bank of England

Figure 2.2 BARGAINS TRADED PER DAY CUSTOMER AND INTRA-MARKET



Structure of Trading Activity

During the weeks following October 19th, significant changes in trading patterns occurred. Three features stand out: the massive volume of trading, the significant increase in the proportion of customer purchase orders to customer sales orders, and the changing pattern of intra-market trading.

TRADING VOLUMES AND LIQUIDITY

Despite the sharp falls in prices, volumes reached unprecedented levels in the week of October 19th, peaking at over 100,000 bargains daily on two days. Figures 2.2 and 2.3 show daily customer and intra-market turnover as bargains and value over the period October 12th to November 11th.

Much of the higher turnover experienced during the week of the crash was in alpha stocks. Trading of alphas accounted for an average of 68% of turnover value in the three weeks from October 19th to November 6th, compared to 50% before October. The levels of trading in betas, gammas and deltas (despite being a lower proportion of total turnover) rose in the week of October 19th, but declined during the following two weeks.

The emphasis on alpha stocks is to be expected given these circumstances. Since alphas represent the greater proportion of institutional UK equity portfolios and are also the most liquid equities, investors wanting to reduce equity exposure could do so quite easily by selling large blocks of alpha stocks.

INTRA MARKET BUSINESS

On average, intra market turnover accounts for half of total turnover (customer plus intra market) by value. In the period from October 19th to November 6th, intra-market turnover accounted for only 40%, much lower than usual (see figure 2.4).

Of more interest perhaps is the fact that intra market business conducted via equity IDBs increased substantially during the week of the crash and has continued at a higher level than before. The number of intra-market bargains

being dealt via IDBs increased three fold after October 20th.

It is worth noting that wider touches and spreads, which as we shall see have prevailed since the crash, make it easier to transact IDB business. This is because IDB deals are conducted using one price to match the buyer with the seller. Wider touches mean there is more room to "negotiate" a price which is acceptable.

Figure 2.3: TURNOVER VALUE PER DAY CUSTOMER AND INTRA-MARKET

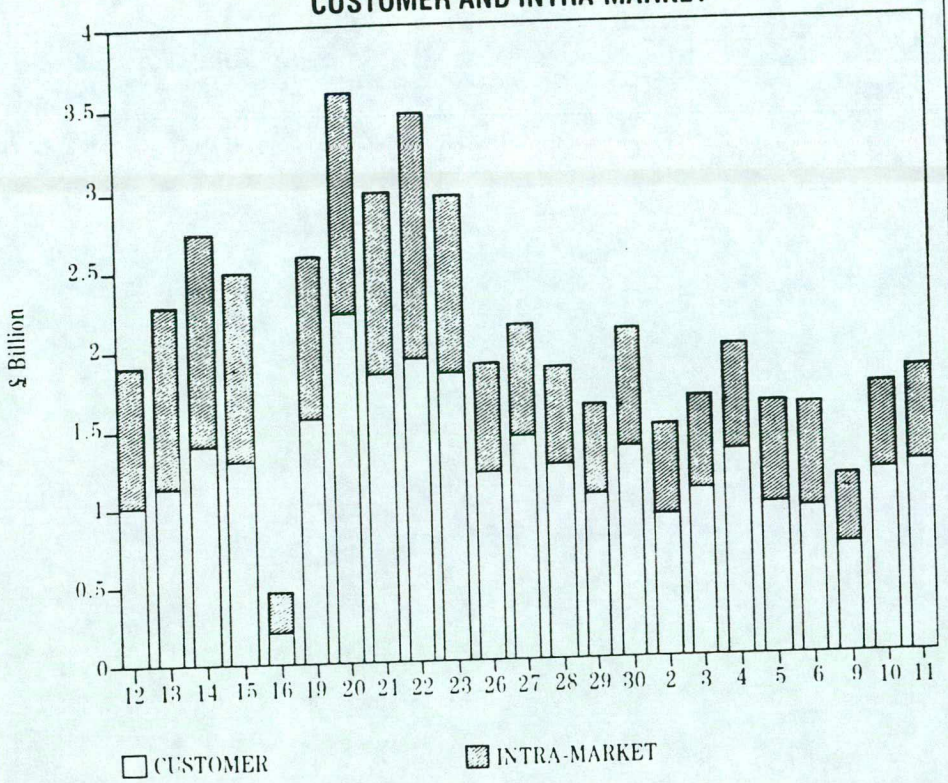
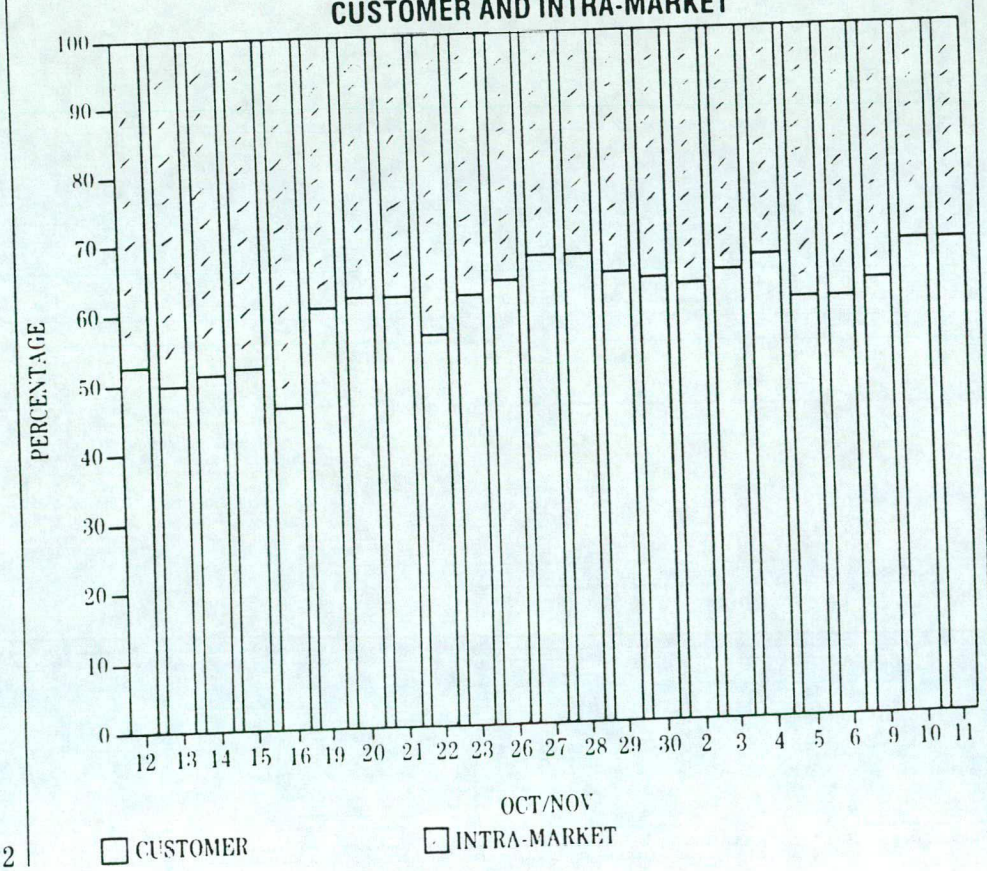


Figure 2.4 TURNOVER VALUE CUSTOMER AND INTRA-MARKET



To explain the growth in IDB business, it has been said that the very high level of uncertainty has discouraged market makers from trading amongst themselves directly. This is particularly true during "fast market" periods when price quotations are indicative only. Market makers have been able to avoid being "hit" by other market makers if their price moved out of line. However, the growth in IDB business has been sustained which would indicate that this type of service is now more widely appreciated by market makers.

The "fast market" indicator is used when the volume of market activity is such that market makers are unable to keep their quotes up to date. When the "fast market" status indicator appears on the screens, all prices shown on SEAQ are regarded as indicative only and must be confirmed prior to dealing with market makers.

It is widely felt that during highly volatile periods, declaring a "fast market" actually improves the quality of the market since this is considered to be the only realistic option when prices are moving too fast for screens to be updated. In fact, as we shall see, during "fast market" periods, the bulk of customer business is done at prices very close to the market best quotations as displayed on the screens.

Because prices are not firm during "fast market" periods, market makers are able to avoid being "hit" for large trades by other market makers if they are slightly slow in updating, or if delays within systems prevent them from updating immediately. Without the fast market "safety valve", in such circumstances a market maker would have three options, any of which would be more detrimental to the market. These options are:

- To reduce his quotation size to avoid large "hits".
- To ensure that his bid quote was below the current market bid quote (since a bid price below the market bid would not be hit by other market makers).
- To cease dealing. This is an extreme decision since a market maker opting

to de-register in a stock is not allowed to re-register for 3 months.

"Fast markets" were declared at the following times during the week of October 19th:

	Fast Markets Declared
Monday 19th October	09.10 — 09.23
	11.00 — 12.00
Tuesday 20th October	09.00 — 11.00
	14.32 — 16.00
Wednesday 21st October	09.00 — 09.30
Thursday 22nd October	09.08 — 10.00
	11.47 — 12.40

Figure 2.5 DAILY CUSTOMER BARGAINS PURCHASES AND SALES

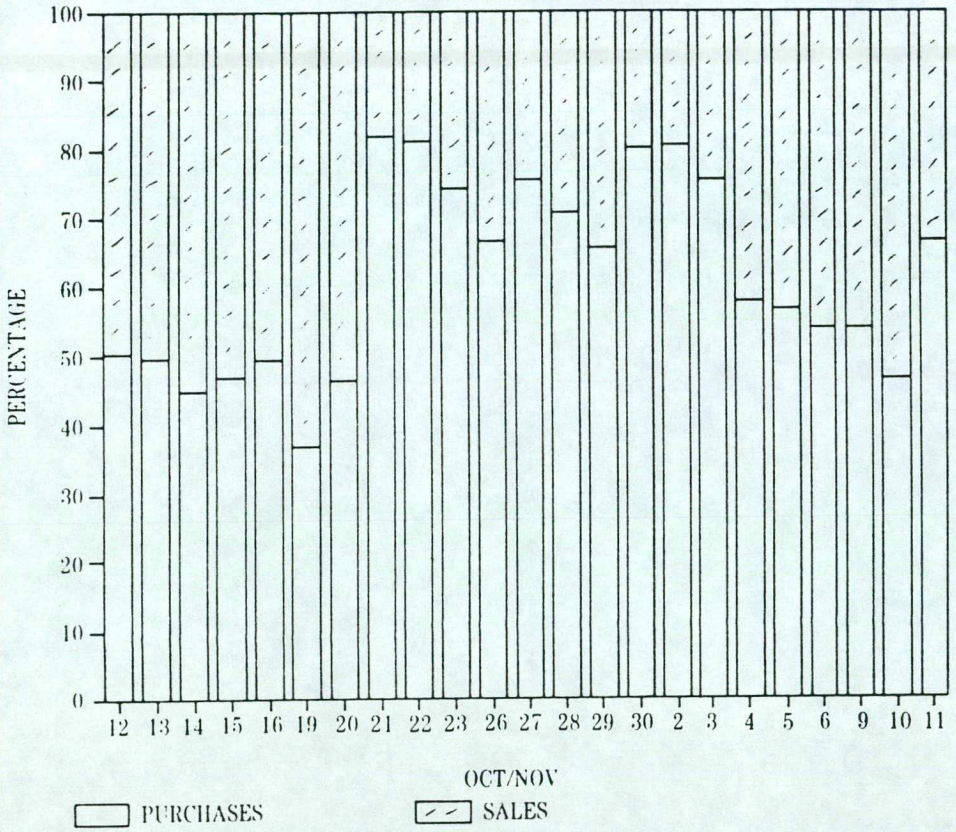
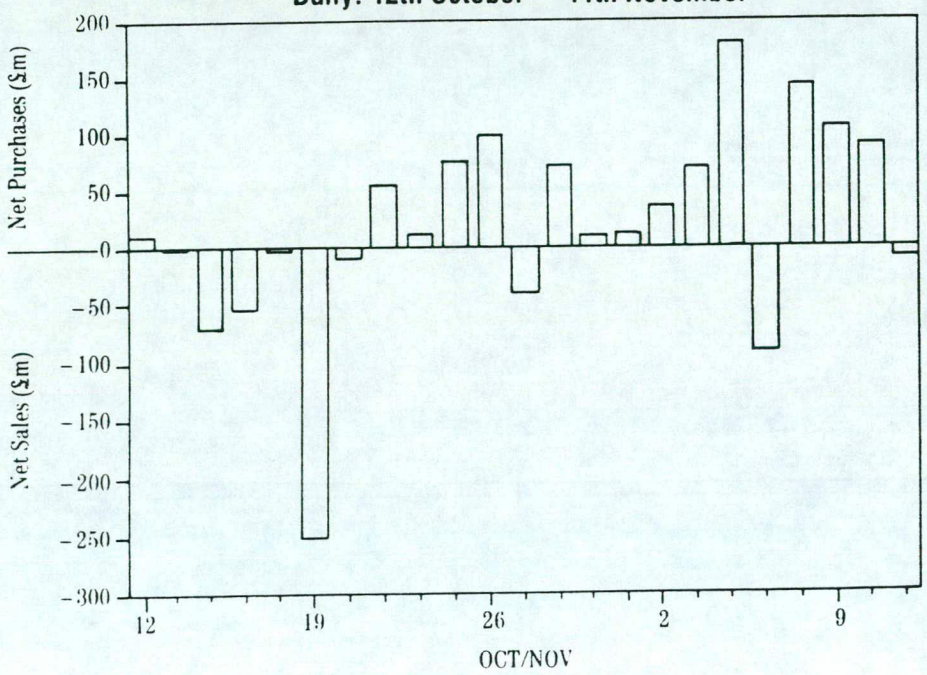


Figure 2.6: NET CUSTOMER PURCHASES — UK EQUITY Daily: 12th October — 11th November



BUYING AND SELLING PRESSURES

In recent years, which have seen an upsurge in individual investor business, there has been a fairly even balance of small and large bargains among buyers and sellers. In the three weeks after the crash, the pattern changed significantly. There was a consistent and marked pattern of many more small buy orders to a much lower number of larger sell orders.

While the split of customer turnover by money value between purchase and sale orders was roughly 50:50 as usual, in terms of the number of orders transacted, between October 21st and November 3rd, purchases accounted for up to 80% of all customer bargains. Subsequently, the split has returned to normal levels. Figure 2.5 shows the daily split of buy and sell transactions.

The clear implication is that individuals were net buyers in that period. This is borne out both by comments from member firms and by independent surveys of investor attitudes.

Resilience of Market Maker System

Net customer sales were very substantial on October 19th, amounting to over £250 million. This represented additional inventory for market makers who, in general, were already long of stock. On subsequent days, the net positions were much smaller until the week ending November 6th when substantial customer buying re-emerged.

Figure 2.6 shows the daily net customer purchases between October 12th and November 11th, while figure 2.7 shows the cumulative net purchases over the same period. One can conclude that in the period from October 19th to November 3rd, market makers were judging their price quotations with a reasonable degree of success. They managed to modify selling pressure, thus allowing them to unwind their position.

It is important to note that the ISE's Account trading system, where deals can be closed within the 10 working day period without any transfer of funds, might tend to exacerbate selling pressures because of investors' ability to close sales within the Account. Most brokers would, of course, discourage short selling within the Account since

Figure 2.7: NET CUSTOMER PURCHASES — UK EQUITY
Cumulative: 12th October — 11th November

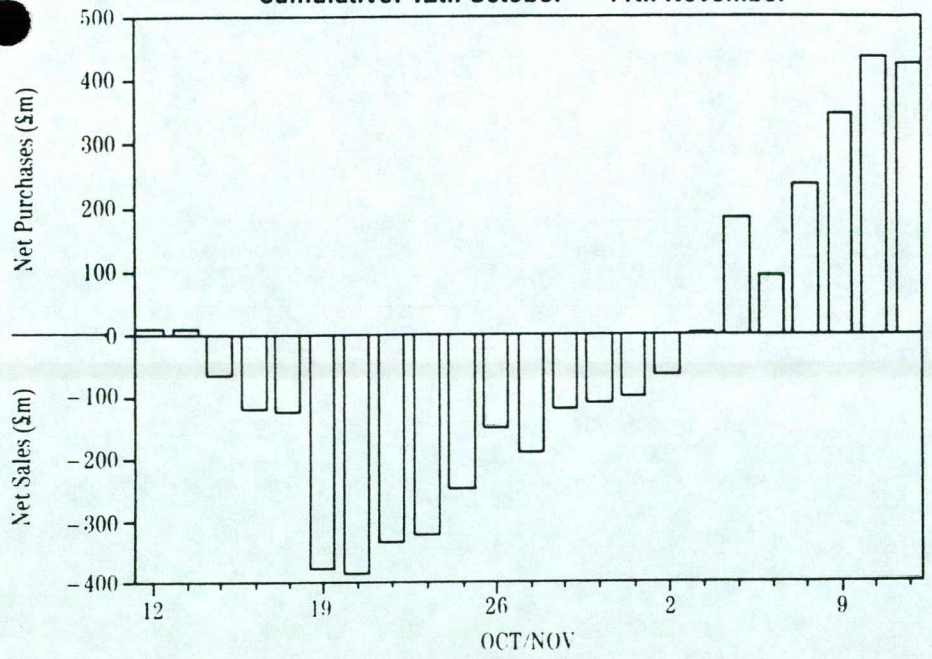
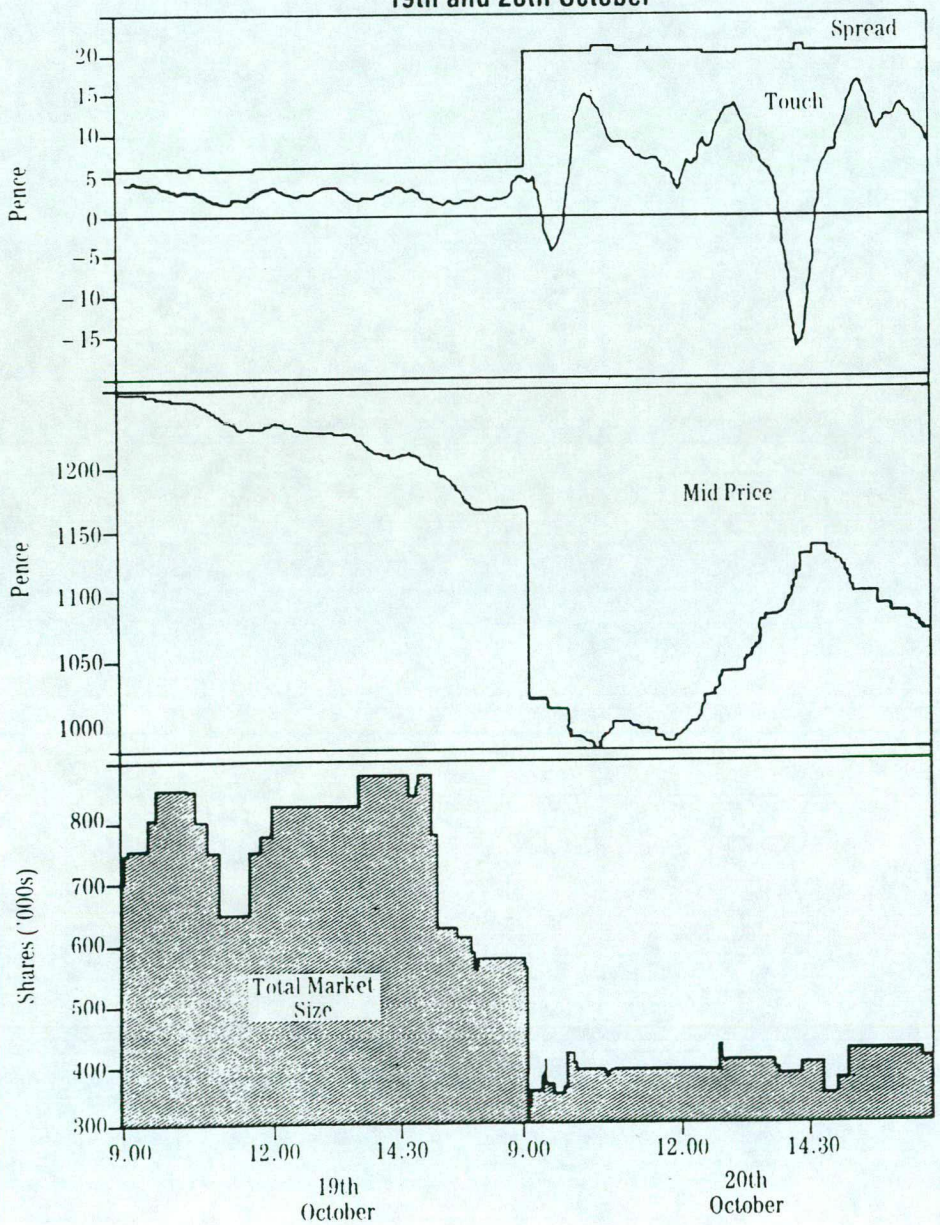


Figure 2.8: SHELL T&T
19th and 20th October



they as firms are ultimately liable if a client is unable to meet his obligations.

There is little doubt from our results that the ability of market makers to hold substantial long positions is a reflection of their valuable stabilising role in absorbing the weight of selling pressure. Commentators have argued that without the increased capital inflow and restructuring of firms as a result of Big Bang, market makers may not have been able to "weather the storm" as well as they did.

Obviously, most if not all market makers lost money, and it has been widely publicised that some lost very large amounts. Market maker positions were monitored extremely closely by the Surveillance Division of The Exchange during this period. A measure of the strength of the system can be gleaned from the fact that despite these very extreme trading conditions, there were no doubts about the ability of market makers to meet their obligations and no market maker left the market during this period.

Market Depth

A key test of the effectiveness of a market is how well liquidity is maintained under pressure. We have commented in previous Quarterly reports on the improvement in liquidity — as measured by depth and touch — over the past year. How then did liquidity hold up under the extreme conditions during the period of the crash? There are actually three aspects to this question:

1. How did the usual measures of liquidity (based on the size of quotations) behave?

2. To what extent were the prices of quotations a fair reflection of actual dealing prices?

3. To what extent did liquidity in less active stocks suffer in comparison to the more active stocks?

MEASURES OF DEPTH AND TOUCH

We have seen that on October 19th market makers provided a high level of support in a falling market. Their net purchases of UK equities exceeded a quarter of a billion pounds on that one day (to put this in context, this is equivalent to the total throughput of the equity market on an average day in 1986). Market makers generally

maintained their screen sizes and spreads at pre-crash levels until well into Monday afternoon, or even Tuesday morning. After that time, the liquidity of the market started to deteriorate quite rapidly.

To illustrate the extent of the deterioration, we looked in detail at the quotations of three alpha stocks during the two day period. The three were chosen to cover a range of circumstances:

- SHELL TRANSPORT & TRADING CO. — an internationally traded stock which over the three week period, October 12th to 30th, outperformed the FT All Share Index.
- AMSTRAD — a stock with limited international interest which moved roughly in line with the FT All Share Index.
- JAGUAR — a stock which is heavily traded in the US, has a large dollar exposure and substantially underperformed the FT All Share Index.

Our results are illustrated in figures 2.8 to 2.10. Firstly looking at figure 2.8, the top portion shows the average quoted spread and the touch (in pence) throughout October 19th and 20th for Shell. As can be seen, the spread remained unchanged throughout the Monday but increased to a 20 pence spread on the Tuesday, four times higher than the day before.

Fast markets were declared for two periods during the Tuesday: from 09.00 — 11.00 and from 14.32 — 16.00. During these periods of very rapid price changes, screen quotations actually produced negative touches.

The mid-section of figure 2.8 shows the mid-price for the best bid and offer quotes for Shell. Quotes declined only slowly during the Monday, but were marked down dramatically at the market opening on Tuesday. The increasing price trend throughout the morning continued until 14.30 (the opening of the NYSE) when the price began to fall, but by less than the fall experienced across the whole market (as measured by FTSE).

The bottom portion of figure 2.8 shows the total market size for Shell as expressed in terms of the total of all bid quotation sizes made by registered market makers in Shell. Market size was reduced by about a half by Monday afternoon after NYSE opened, and reduced even further on the Tuesday.

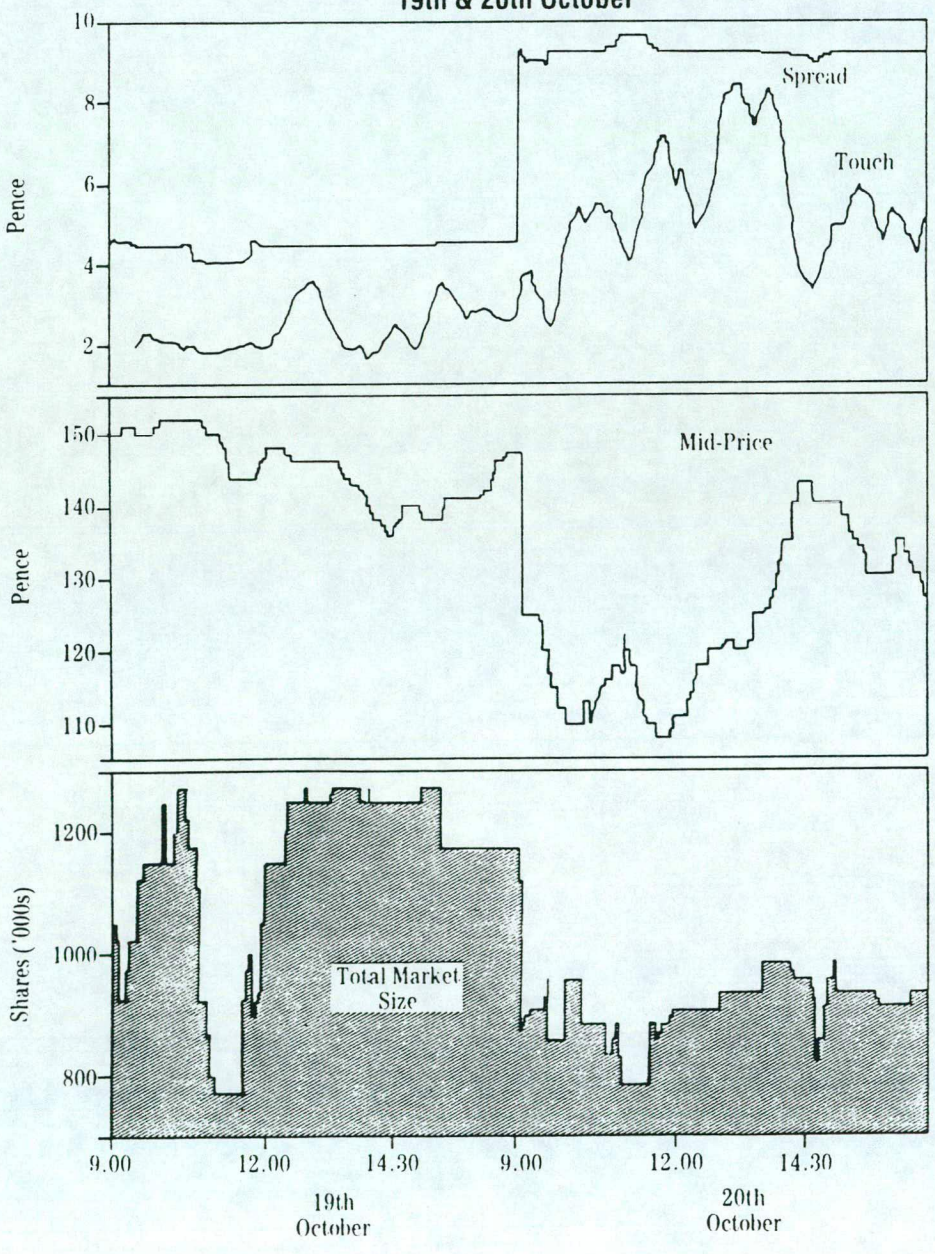
Figure 2.9 illustrates the similar factors for Amstrad, while figure 2.10 shows the effect on Jaguar shares.

In all three stocks (though to a lesser degree for Shell) total market size fell sharply in the late morning of October 19th. This coincided with the start of the fast market period from 11.00 to 12.00 on that day. There was little change in market size for each of the three stocks despite very substantial (though temporary) price recoveries in the early afternoon.

These examples reflect the extent to which market makers on October 19th were attempting to hold the market at a steady level, by tending to treat the events of the day as a temporary phenomena and holding prices. Not only did they maintain their spreads and sizes, they also took on very substantial inventories during the course of the day given the weight of selling pressure. By the next morning perceptions had changed due largely to the dramatic 509 point fall in the Dow Jones Industrial Average Index on the NYSE overnight.

Looking at a wider picture and longer time period, figures 2.11 to 2.15 show measures of the touch, average quotation spreads, market size, maximum quote size and size premia for each group of alpha, beta and gamma stocks. The graphs cover the period October 12th to November 13th and were taken at 10.30 a.m. each day. The observation for October 16th has been omitted as the market was closed due to severe storms.

Figure 2.9 Amstrad
19th & 20th October



Key features are outlined below:

ALPHAS

- Average alpha spreads, which were running at 1.2% prior to October 19th had, by the morning of the 20th, more than doubled to 3%. They continued to rise for the rest of the period, peaking at over 3.4%. (The percentage spread, of course, reflects the widening in absolute terms, together with the fall in the price of shares in general during the period).
- Average alpha touches increased more slowly than spreads in other stocks. Prior to the crash, alpha touches averaged 0.8%. Towards the end of the period, the average touch settled at around 2%.
- The total size of the market reduced from an average per stock of 650,000 shares to 300,000 shares on October 20th (in value terms, the fall was steeper). At the same time, market makers substantially reduced the maximum size offered. In the week before October 19th, many alphas had quotes in L x L (100,000 shares) or at least 50,000 shares, giving an average maximum quote size of 64,000 shares. On the 19th and 20th, the number of L x L quotes was reduced so that the average size of the maximum quote fell to 34,000 shares. In the week to October 30th both the total market size and the maximum quote size began a slow recovery, and this recovery has continued to the present.
- A significant size premium emerged for alphas. Normally the difference between the yellow strip quote and the quote at maximum quote size is very small, averaging only 0.05% across all alphas. After a peak on the 20th, the premium settled at 0.25% for the rest of the week and fell in the succeeding week (see figure 2.15).

BETAS

- Average beta touches and spreads showed a profile similar to that of alphas. Spreads which had averaged about 2.5% prior to the crash moved up sharply by Tuesday 20th to over 5%. Average touches, from a pre-crash level of around 1.8%, rose more slowly than spreads to over 4% by October 30th. (The observation for

Figure 2.10: Jaguar
19th & 20th October

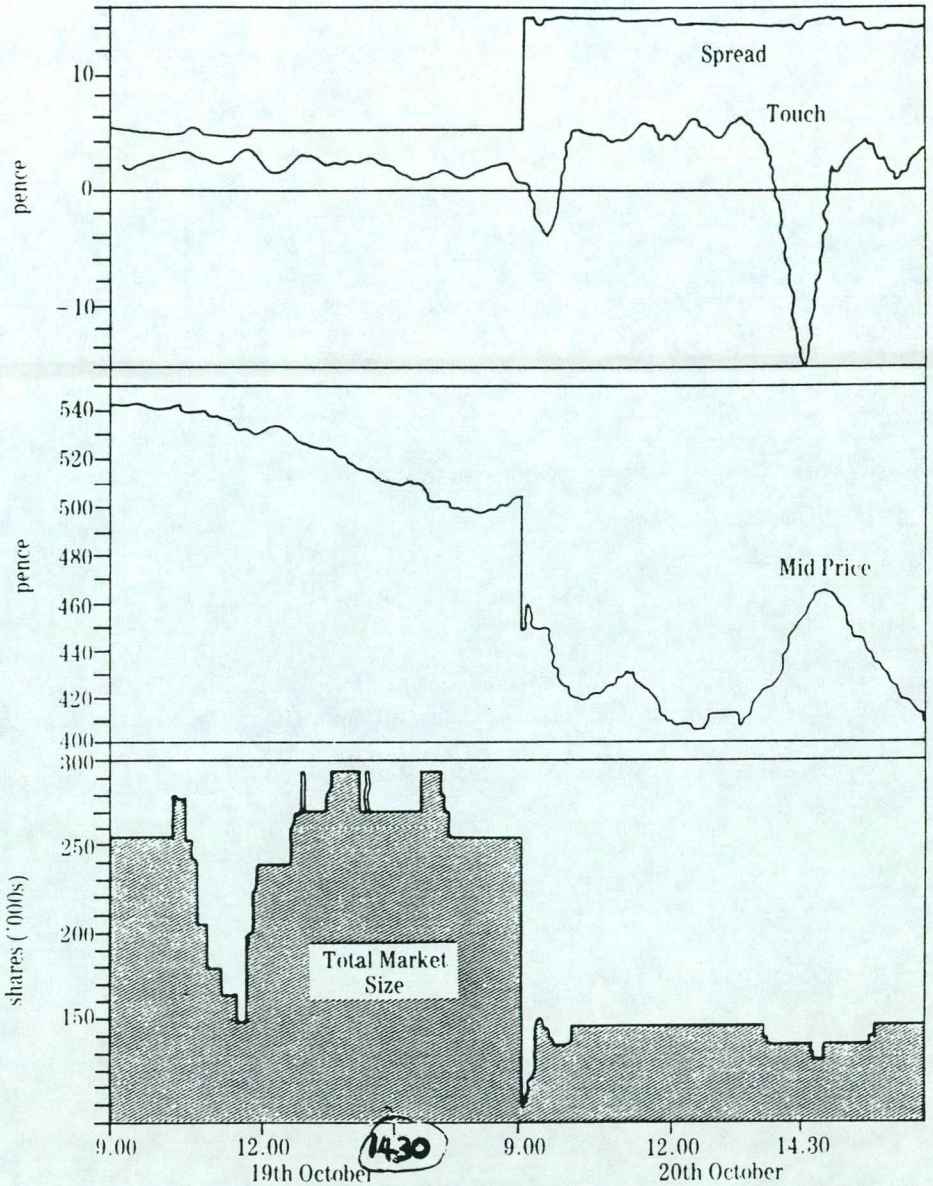


Figure 2.11: Av. Percentage Touch — 12/10/87 to 13/11/87
Alpha, Beta and Gamma Stocks

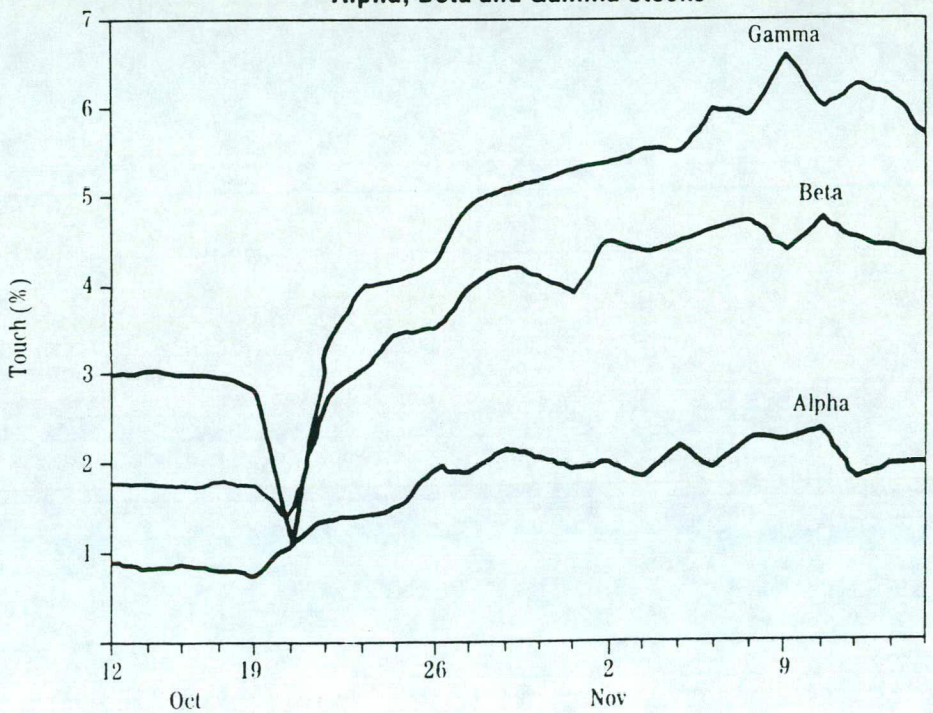


Figure 2.12: Av. Percentage Spread — 12/10/87 to 13/11/87
Alpha, Beta and Gamma Stocks

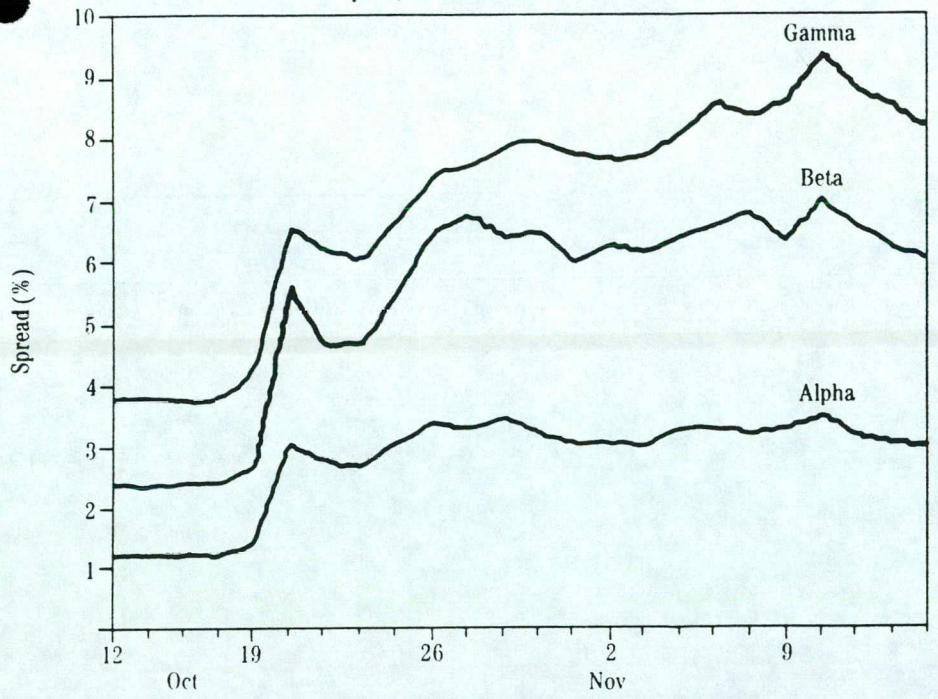
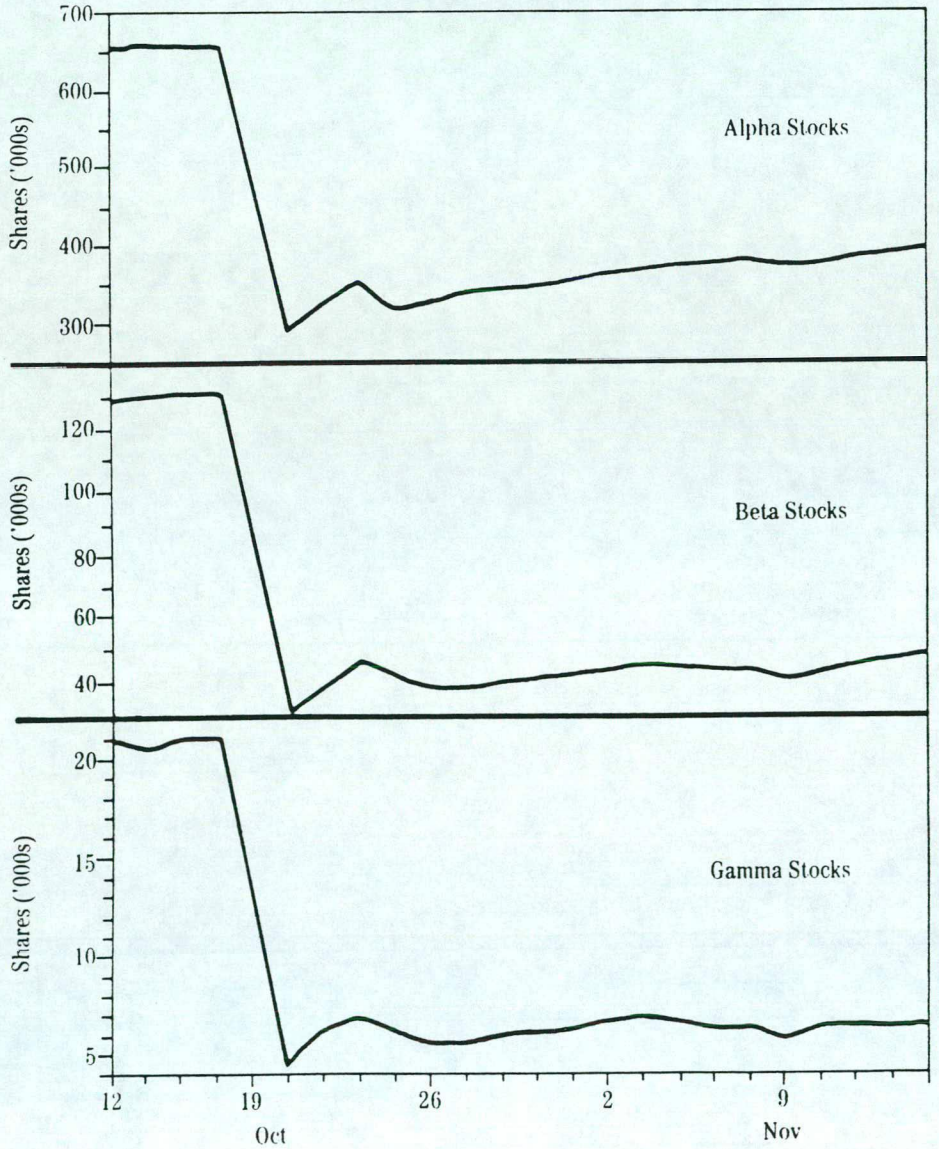


Figure 2.13: Total Market Size — 12/10 to 13/11
Alpha, Beta and Gamma Stocks



October 20th is clearly something of a quirk. In the fast moving conditions on that Tuesday there were many occasions when stocks had negative touches).

- The total size of the market for betas contracted from an average of around 120,000 shares to around 40,000 shares per stock — a 66% reduction. There is an indication of a recovery by October 30th but this recovery had not led to an increase in the average maximum quote size. The maximum quote size languished around 12,000 shares compared to 50,000 shares before October 19th.
- The average premium for dealing in the maximum available size (the maximum size being much smaller as we have seen) rose from about 0.1% to about 0.5% (the spike on October 20th reflects the abnormal negative touches on that day).

GAMMAS

- Average spreads for gammas rose proportionately less than other SEAQ stocks but from an already higher level. Touches widened throughout the period from around 3% to about 6%.
- Total market size for the average gamma stock dropped sharply from around 20,000 shares to 6,000 shares and the average maximum quote size came down from 7,000 shares to around 2,500 shares. Since quotes of above 1,000 shares for gammas are deemed to be firm, this reduction means there were very few firm quotes in gammas on following October 19th; the situation had not recovered by October 30th.
- The size premium for dealing at larger sizes rose approximately threefold, despite the fact that the maximum available size had been reduced considerably.

Price Quality

There are two distinct aspects to the question of price quality. Firstly, did quoted prices move "sensibly" in relation to each other and secondly, were the quoted prices available anyway.

The first was a particular concern in alpha stocks where there were obvious, substantial differences in relative price

movements. For example, Cable and Wireless fell 40% while BT fell only 17% over the same period.

Figure 2.16 shows the results of an analysis showing the price movements of each FTSE stock (relative to the movement in the market as measured by the FT All Share Index), against each stock's US dollar exposure. Dollar exposure is measured as a company's share of profits arising in the US. The figure shows that stocks (such as RTZ, Wellcome, BOC, Jaguar) with high dollar exposure, performed much worse than stocks with a lesser dollar exposure e.g. Marks and Spencer, BT, ASDA, etc.

While one should be aware that this relatively simple measure of dollar exposure may not provide a total picture since apparent exposures may be more or less hedged, it is apparent from the results that there is a clear relationship: stocks which were most vulnerable in terms of dollar exposure have fared worse. Obviously other factors influence individual stocks differently but there is nothing here to suggest that price relativities have moved in an inconsistent way.

The second question concerning price quality is the extent to which price quotes displayed on the screen were actually available for trading. We have noted that "fast markets" were declared on both October 19th and 20th. It is also well known that getting access to market makers was extremely difficult at many times on those days.

Let us look at the access difficulties first. The two day period saw an unprecedented level of business, an unprecedented number of quote changes and an unprecedented level of information flows. Like any industry, the securities industry is staffed and equipped for something like a "normal" level of business with some (spare capacity) for peak periods. There was substantial growth in activity during the first 9 months of 1987 and some strains were beginning to show — not only in the settlement area but also in dealing systems where there were a number of plans afoot to expand or upgrade system capacities. Given this, it is unsurprising that with turnover of 100,000 bargains per day compared to an average level of around 60,000 per day, there were delays

Figure 2.14 Maximum Quote Size — 12/10/87 to 13/11/87
Alpha, Beta and Gamma Stocks

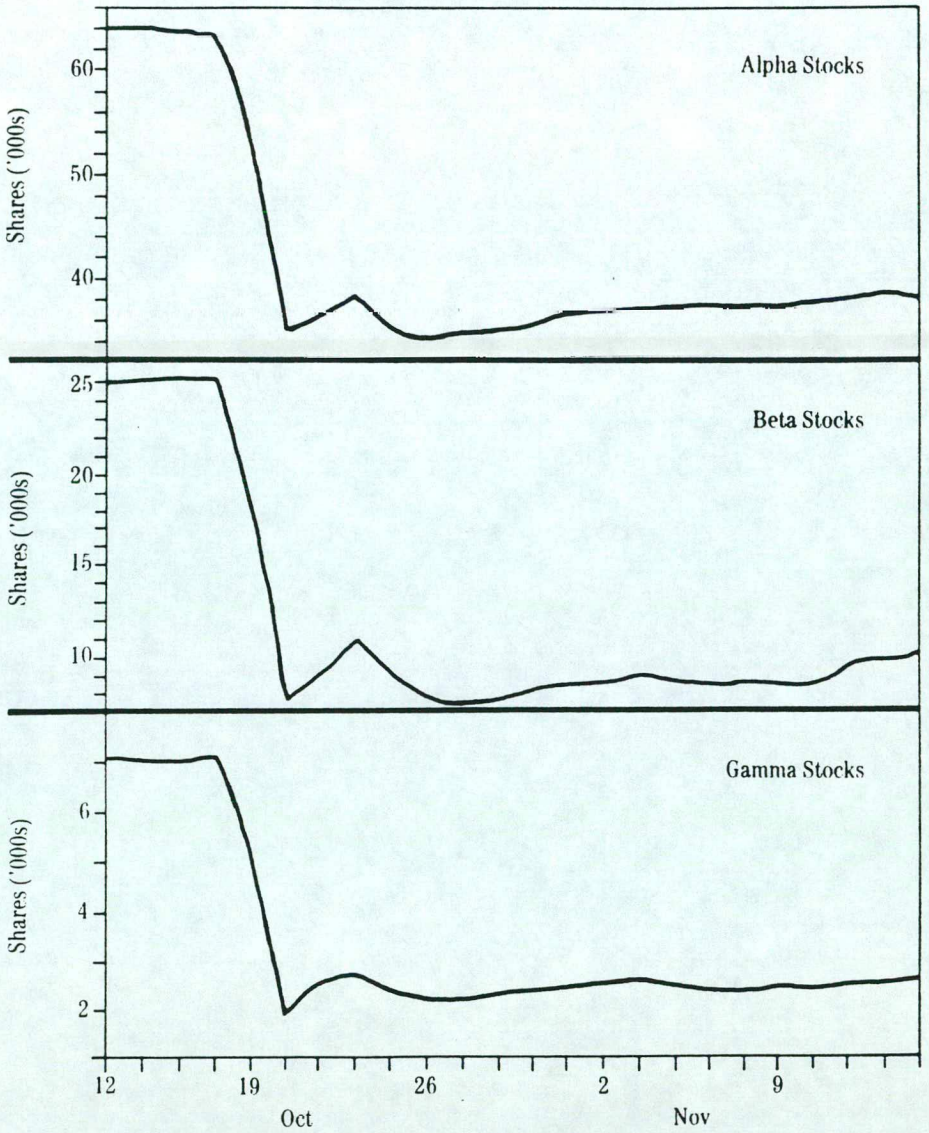
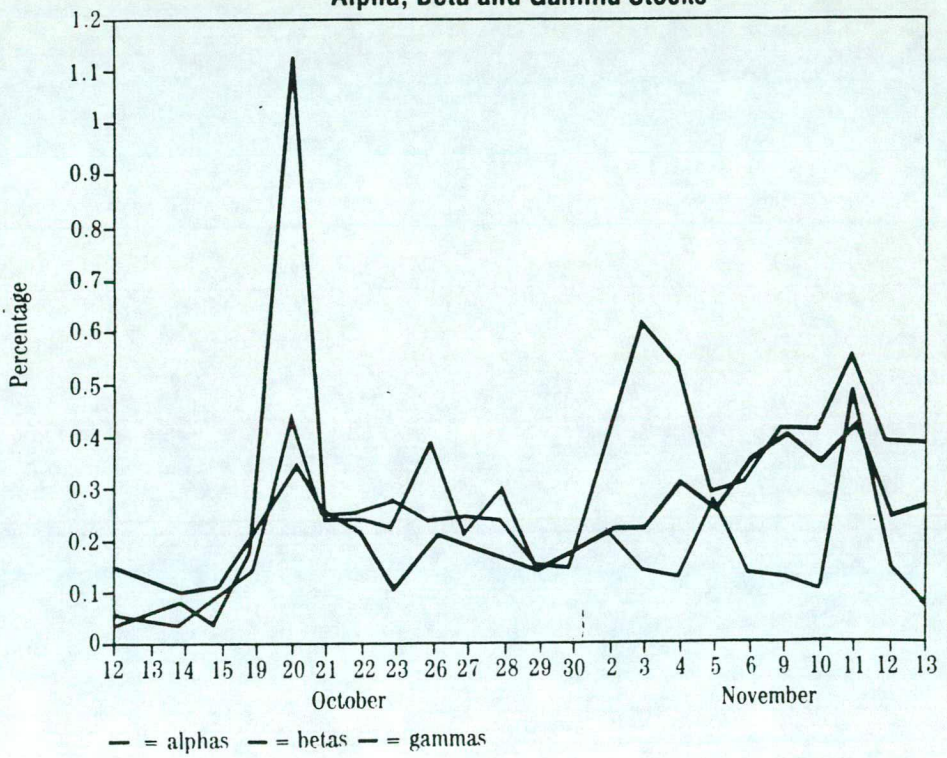


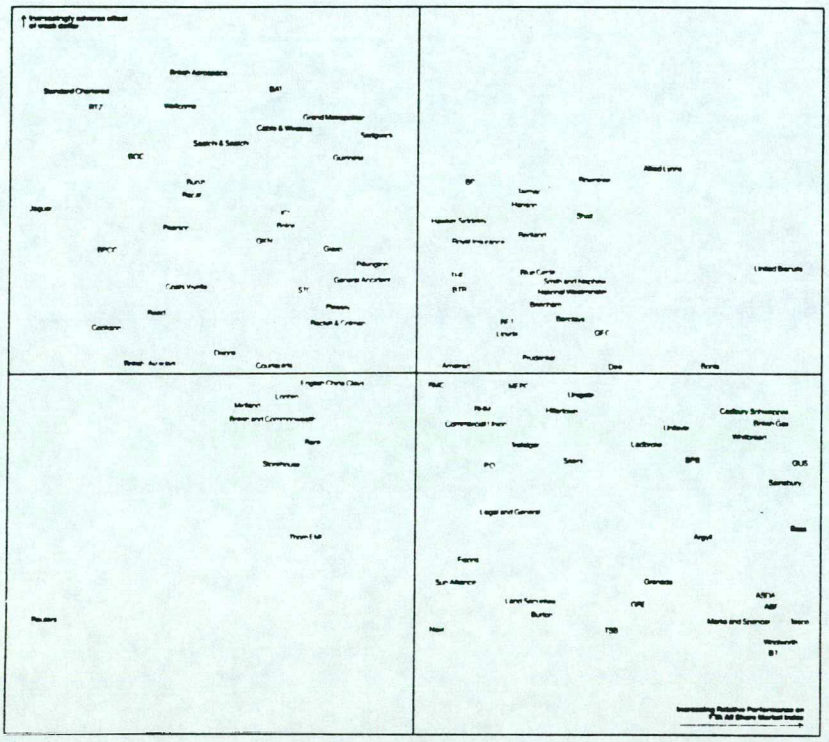
Figure 2.15 Size Premium — 12/10 to 13/11
Alpha, Beta and Gamma Stocks



which, occurring while prices were moving very fast, must have been particularly vexatious.

Moving to the more general question of the availability and reliability of quotations for trading, some commentators have argued that quotations were substantially different from actual dealing prices obtained in the market for long periods during Monday 19th and Tuesday 20th. If this was true, then one would expect to see marked divergences between quotation and transaction prices. The major continuous market indicator, the FTSE 100 Index, is in fact calculated on the basis of mid-price quotations of the best bid and best offer for each of the Index's 100 constituents and weighted by each constituent's market capitalisation. In order to examine how reliable quotations were compared to actual transaction prices, we recalculated FTSE minute by minute for the two days using trade or dealing prices of customer transactions and compared this index to the official FTSE 100 Index.

Figure 2.16 Price Performance against Dollar Exposure All Share Market Index



Source: Hoare Govett

Figure 2.17: FTSE — 19th October — Quotes v. Transaction prices

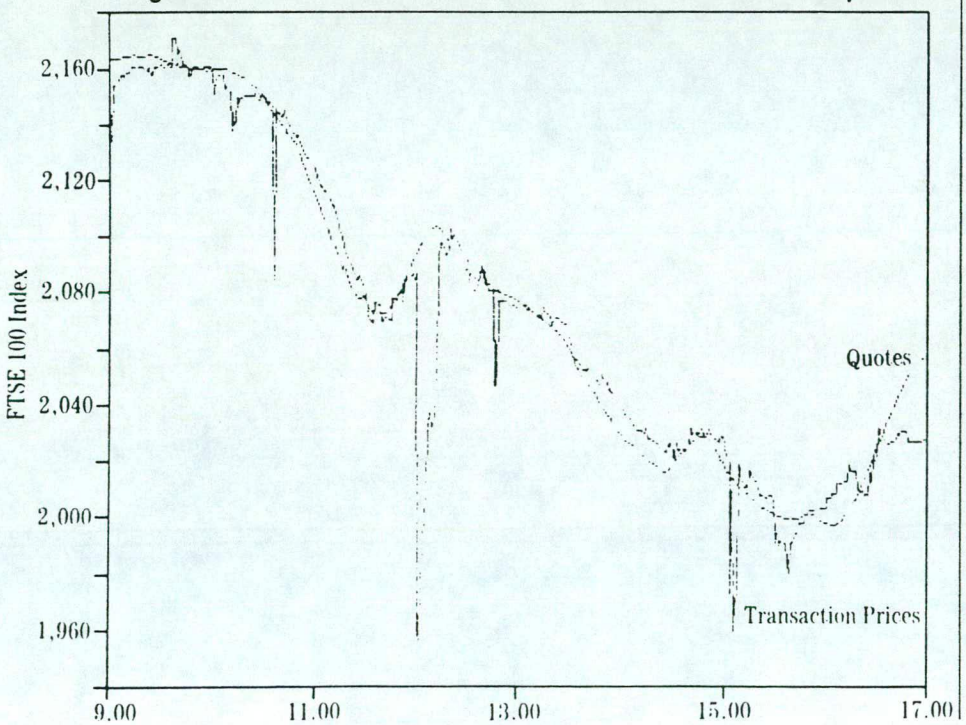


Figure 2.17 shows the results of the newly calculated FTSE using transaction prices against the official FTSE which uses quotations. As can be seen, apart from brief divergences — particularly around noon on the Monday — the two indices moved closely in step.

The brief divergences which occurred just past 12.00 on Monday and around 15.00 on the Tuesday could be simply a result of one or more technicalities which arise from this particular type of analysis.

Firstly, recall that the official FTSE is calculated using the mid-price of the best bid and best offer quotations. In using transaction prices to recalculate FTSE, these prices will almost always be away from the mid-price: customer buy orders being executed at the offer price whilst customer sell orders are executed at the bid price.

Secondly, actual transaction prices may be further away from the mid-price quotation if the transaction involved a very large order. As discussed earlier, a significant size premium emerged for alpha stocks during this time (see figure 2.15).

Thirdly, the divergences between the two FTSE calculations may be a result of inaccurately time-stamped transactions. Stray observations well away from the market could result from such inaccurate timings.

The closeness of the fit between these two indices is particularly encouraging especially in light of these technicalities. The results provide substantial evidence to suggest that for most of the two days, screen quotations (from which the official FTSE is calculated) were indeed a fair representation of where the market was.

Impact of Visibility and Internationalisation

We now focus our attention on two further issues concerning the effect of the high degree of visibility of the ISE's trading system on volatility, and the impact of foreign investors' activity on the UK market.

VISIBILITY OF THE UK MARKET

It has been argued that the high level of visibility of SEAQ causes jumpiness among market makers which, in a volatile phase, generates "excessive" (and possibly spurious) price movements. Market makers may over-react, cutting prices more than is justified in order to protect themselves and possibly generating a domino-type effect as other market makers leapfrog downwards.

If this was true we would expect that stocks with higher visibility, (i.e. alphas), would be more susceptible to greater volatility than less visible stocks such as betas, gammas and deltas. Conversely, it could also be argued that because alphas make up a significant share of trading, visibility of the alpha market may exert some influence on the perceived visibility of the market as a whole. If this was the case, then one would expect similar levels of volatility across all sectors of the market and not just in alphas.

While conclusive results on volatility will require more research, a study of a sample of stocks from each of the four groups (international stocks, major ADR stocks, other alphas, betas and gammas) has been conducted.

Obviously volatility increased for all types of stock during the crash period. We compared price volatility in the 15 business days before October 19th and the 15 business days after. The measure of volatility was the standard deviation of closing price changes. Changes in volatility are illustrated in Table 2.3.

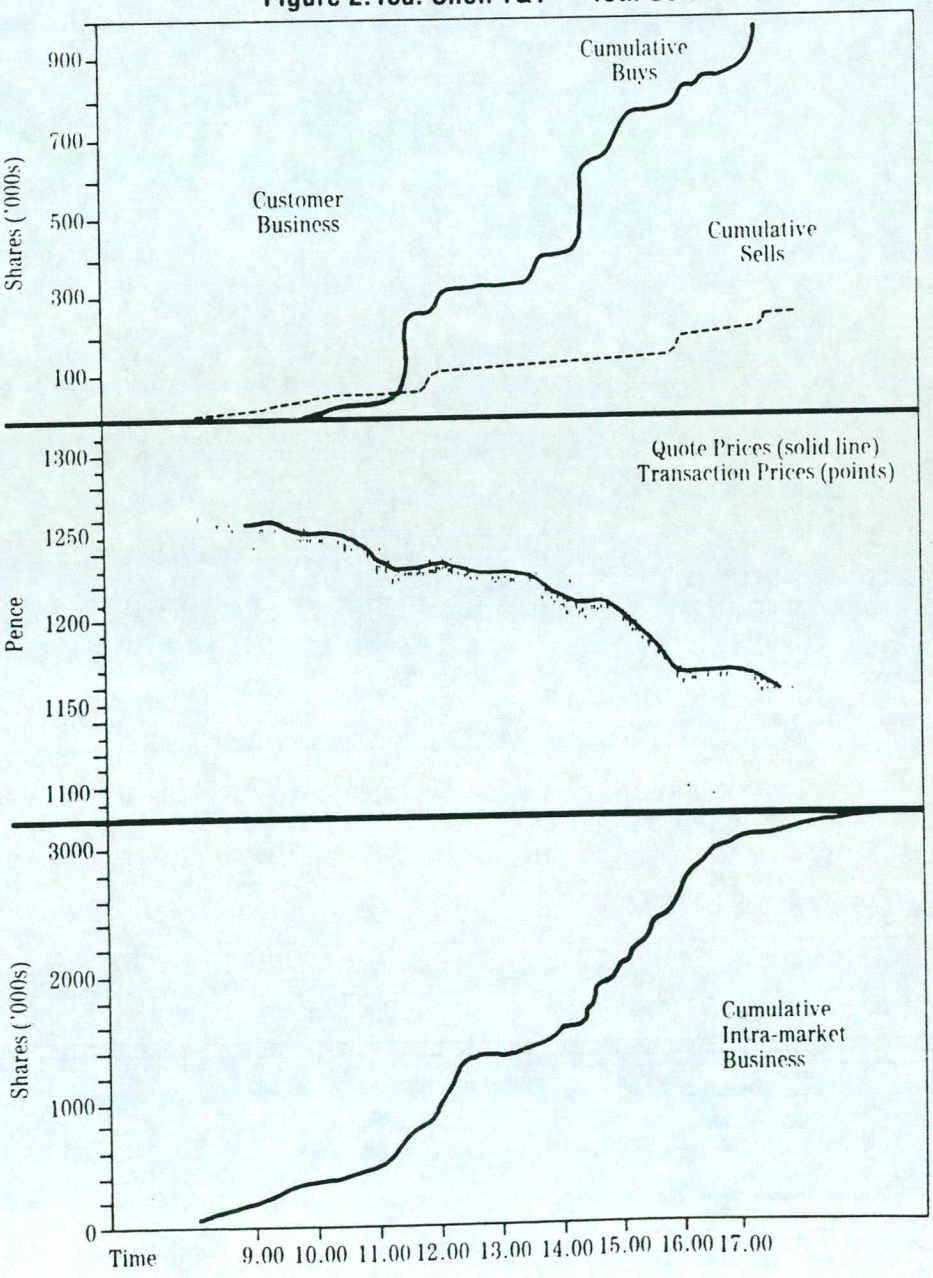
The results show some differences — volatility of international stocks and gammas apparently increased more than in alphas and betas. However, given that volatility of all types of stocks had increased enormously, these differences in volatility between different types of security can only be considered comparatively minor. In particular, the differential increase in volatility between alphas and betas is very small indeed. This is particularly significant given the fact that it is between alphas and betas that the main difference in visibility exists: transactions in alphas require instantaneous trade publication, whereas beta transactions are not published until the following day.

Our results indicate that there is no significant evidence that volatility has been stimulated by visibility. Nor do they indicate that a domino-type collapse of prices occurred — prices fell as selling pressure developed. Our results suggest that the enhanced visibility of ISE markets has meant that price sensitive information and changes in market sentiment can be and are, much more quickly reflected in prices. The more quickly information is relayed to the market and absorbed into prices then the more efficient (and fairer) is the market — "the stock exchange is the messenger, not the message".

TABLE 2.3:
VOLATILITY IN FOUR GROUPS OF STOCKS

Stock Group	*Standard Deviation of Daily % Price Movements:*		*Relative Volatility*
	(a) before	*(b) after*	*(b/a)*100 %*
International	.050	.220	437.5
Alphas	.063	.218	345.2
Betas	.070	.239	340.6
Gammas	.062	.272	415.9
All Stocks	.062	.237	383.1

Figure 2.18a: Shell T&T — 19th October



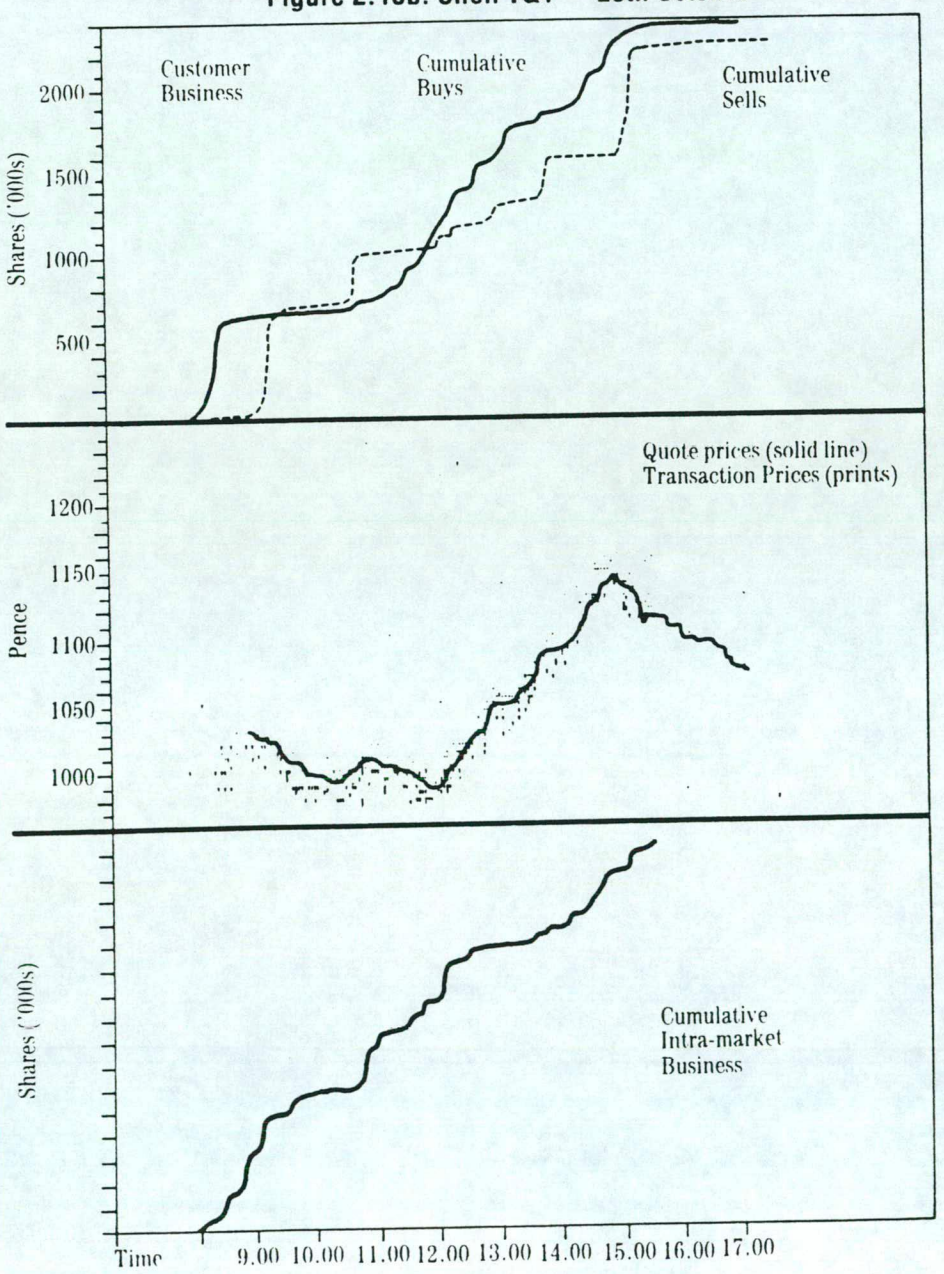
In order to illustrate the way prices and quotations moved and interacted with order flow, we studied the trading pattern and price movements in individual stocks during October 19th and 20th. Figures 2.18a and 2.18b show the results of our analysis for Shell on the Monday and Tuesday, while figures 2.19a and 2.19b show results for Amstrad.

Looking, as an example, at figure 2.18a for Shell on October 19th, the top portion shows the cumulative customer buy and sell orders executed in the market. The mid section plots the mid-price of the best bid and best offer quotation, together with actual trade prices for transactions conducted in Shell throughout the day. As in the case with our earlier analysis of FTSE based on transaction prices versus the official quote-based FTSE (see Figure 2.17), the SEAQ screen quotations for Shell were in fact very closely related to actual market trading prices. The bottom portion of Figure 2.18a shows the cumulative intra-market transactions in Shell. As can be seen, both customer and intra market trading occurred at all levels throughout the day.

On examining the statistical data illustrated in our figures, there is no evidence to suggest that market makers responded irrationally, or that they panicked and over-reacted by making arbitrary or spurious price cuts. Indeed, our results suggests that prices moved to reflect trading pressure.

To recap, key results indicate that transaction prices and quotations show a very close relationship and there was no evidence of any domino-type effect movement in prices. Generally speaking, trends in price movements reflect the net customer trading activity: when there was net selling pressure, prices moved down as one would expect; when buying orders dominated, prices moved up.

Figure 2.18b: Shell T&T — 20th October



EFFECT OF INTERNATIONALISATION

It might be that London, with a higher representation of international stocks, overseas securities houses and overseas client base, is more exposed to changes in global sentiment. London is a major centre for trading foreign stocks but, more importantly for the UK equity market, many major UK equities have a significant number of foreign holders. It is widely considered that shareholdings in UK companies by overseas investors are likely to be more volatile than holdings by domestic institutions.

London, since it remained open with a high level of liquidity, would have been the easiest market in which foreign investors could raise cash. Investors wanting to reduce the equity content of their portfolios would have found it easier to trade into London.

The question which concerns us is whether foreign investors were more inclined to liquidate their holdings of UK stocks and if so, whether this was a factor which caused the UK market to fall more than it might otherwise have done?

It is unlikely that we will ever be able to answer this question with absolute certainty. There is no requirement for foreign investors to declare themselves to the ISE. Brokers may know but in very many cases transactions are dealt through nominees without any identification of the ultimate beneficial owner. However, we are able to examine the trading pattern of one particular group of foreign investors, namely holders of American Depositary Receipts of UK stocks. These holders are mainly American investors who have bought or sold UK equities in ADR form because of the relative ease in trading and settlement, especially when dealing outside of the UK.

Firstly, looking at the volume of trading in UK ADRs during the period of the crash, we found that in London volumes had increased significantly from

about one million ADRs per day before October to over 2.5 million per day during the week of October 19th.

The question that arises then is 'how much of this trading activity was a result of ADR holders selling into London?'. Actual flowback, or the converting of ADRs back into equity form as a result of net selling pressure, was in fact limited; most of the turnover (activity) in ADRs represented transfers within the ADR holding community, and not sales of ADRs back into the UK market.

This result is borne out by our analysis outlined in Table 4.2. Column (a) which shows the ADR turnover in the US for each UK stock during the period from October 15th to November 6th. The next two columns show the percentage of each company's shares which were held in ADR form as at October 15th and November 6th. Column (d) is simply the percentage change in ADR holdings during these two dates. The final column calculates the net change in ADR holdings as a percentage of the ADRs traded over that period in the US.

For example, looking at British Gas, there were 3,216,000 ADRs traded in the US, or 32.1 million shares since there are 10 British Gas shares to 1 ADR, during the period. Data from US depositaries show there was a 0.2% reduction in British Gas shares held in ADR form between October 15th and November 6th. Since there are 4,150 million shares in British Gas, 0.2% is equal to 8.3 million shares. This implies then that 8.3 million British Gas shares (or 0.2% of total British Gas holdings) had been sold by ADR holders and converted back into equity form, and this "flowback" is equivalent to only 25% of the total turnover of British Gas stock (in ADR form) in New York.

The two key points to note from the table are:

- The flowback as a percentage of the total market was relatively modest in most cases. Of the four cases in which flow back exceeded 1%, two, Jaguar and Reuters, were particularly hard hit by the crash (Jaguar because of the high proportion of its earnings originating in the US and Reuters because of its heavy involvement in the financial sector which was being hit hardest by the crash).

Figure 2.19a: Amstrad — 19th October

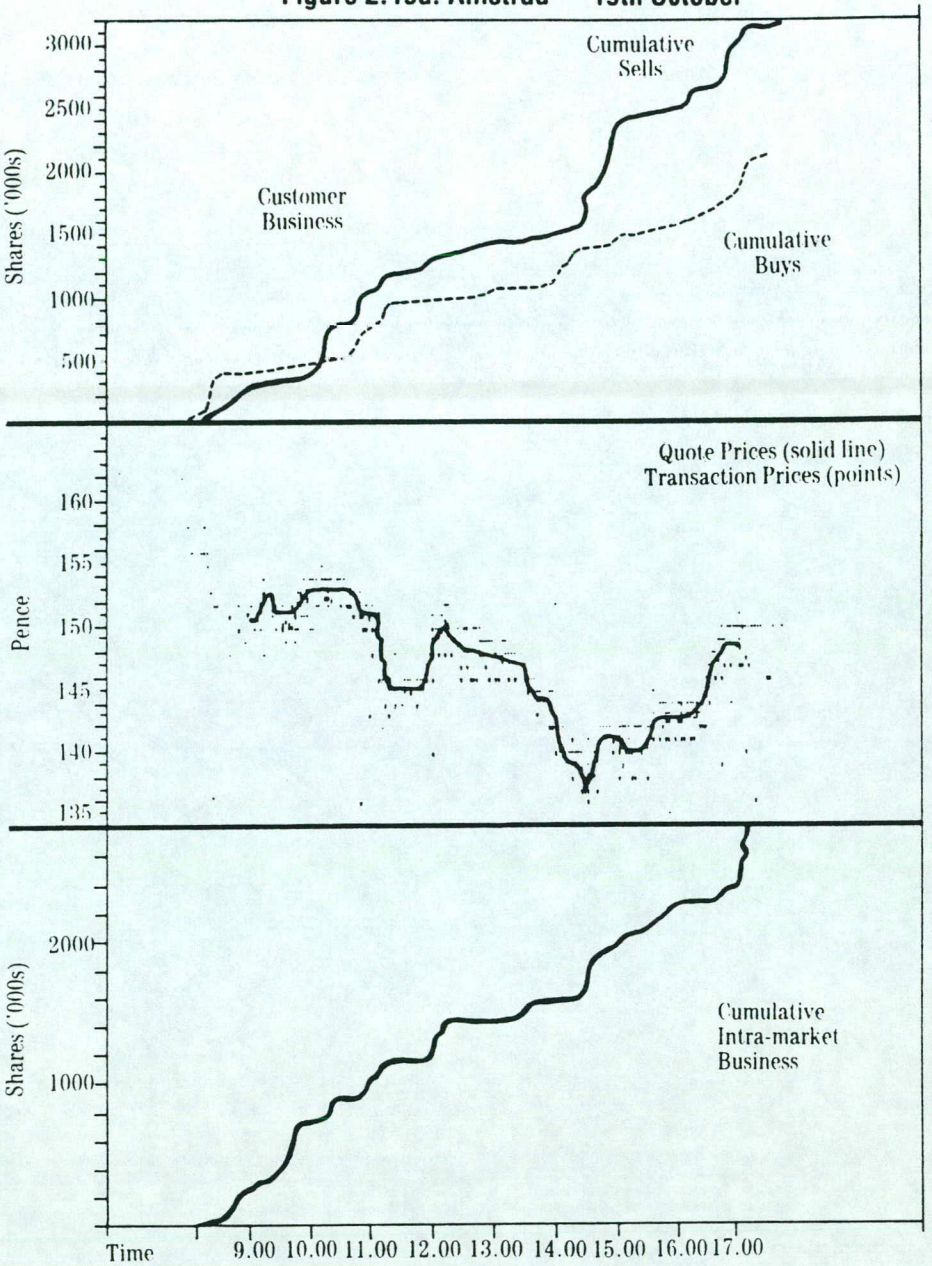


TABLE 2.4:
TRADING AND HOLDINGS OF UK ADRs IN USA: OCTOBER 15th-NOVEMBER 6th

	US Trading of UK ADRs	*Holdings in US Depositories as % of Total Shareholding as at:*			*Flowback as % of Trading*
	('000s ADRs)	*Oct 15*	*Nov 6*	*Flowback*	
	(a)	*%* *(b)*	*%* *(c)*	*%* *(d)*	*%* *(e)*
Beecham	2,867	1.3	1.6	+ 0.3	n.a.
British Gas	3,216	3.8	3.6	− 0.2	25
BP (F/P)	5,846	5.2	5.1	− 0.1	9
Brit Tel	788	0.8	0.8	0	0
Glaxo	19,147	14.6	13.6	− 1.0	38
Hanson	16,192	18.2	18.1	− 0.1	4
ICI	4,111	11.2	10.4	− 0.8	31
Jaguar	19,049	37.6	34.9	− 2.7	26
NatWest	952	1.9	1.8	− 0.1	15
Reuters	7,074	45.7	44.6	− 1.1	8
Saatchi	2,065	20.9	19.4	− 1.5	32
Shell	2,145	3.0	2.9	− 0.1	17

(Source: Kleinwort Grieveson)

Figure 2.19b: Amstrad — 20th October

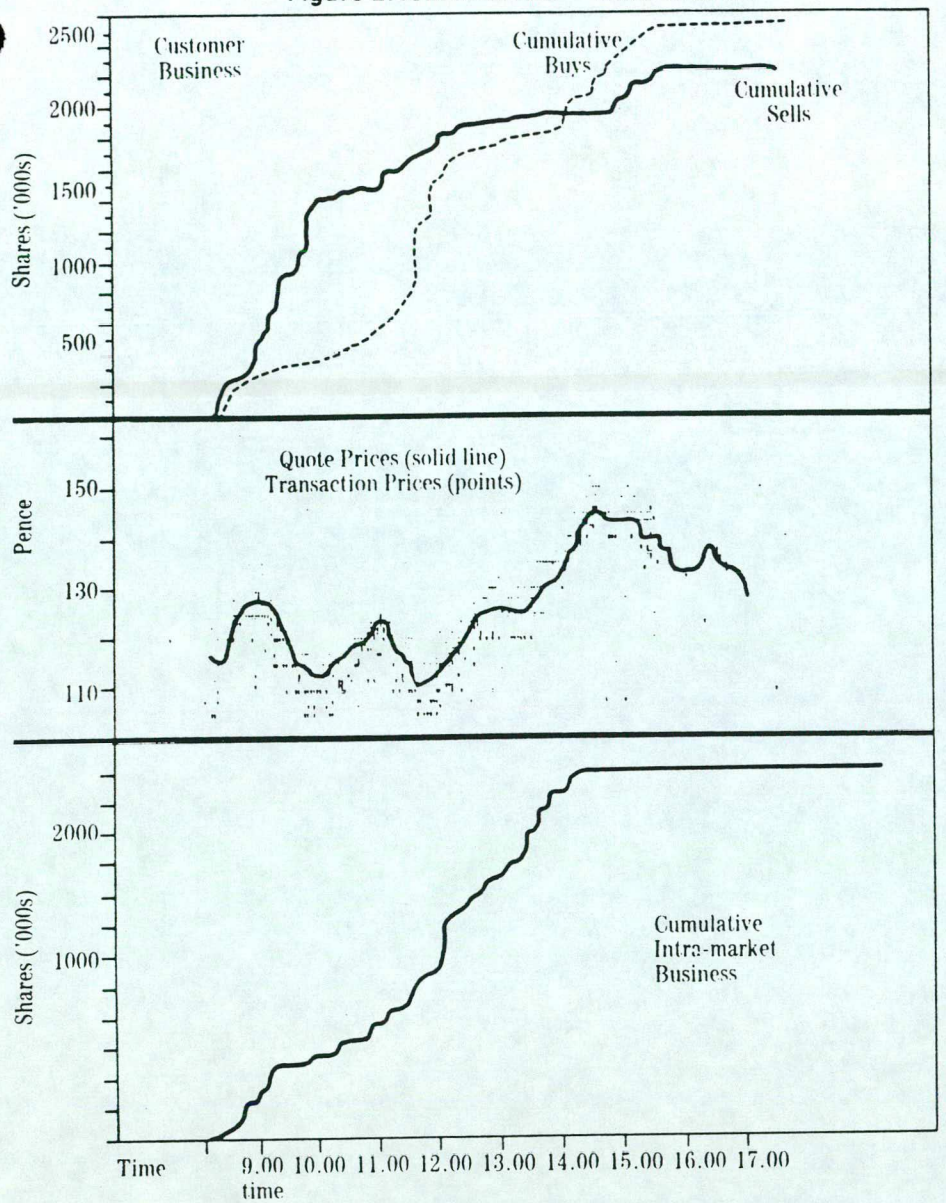
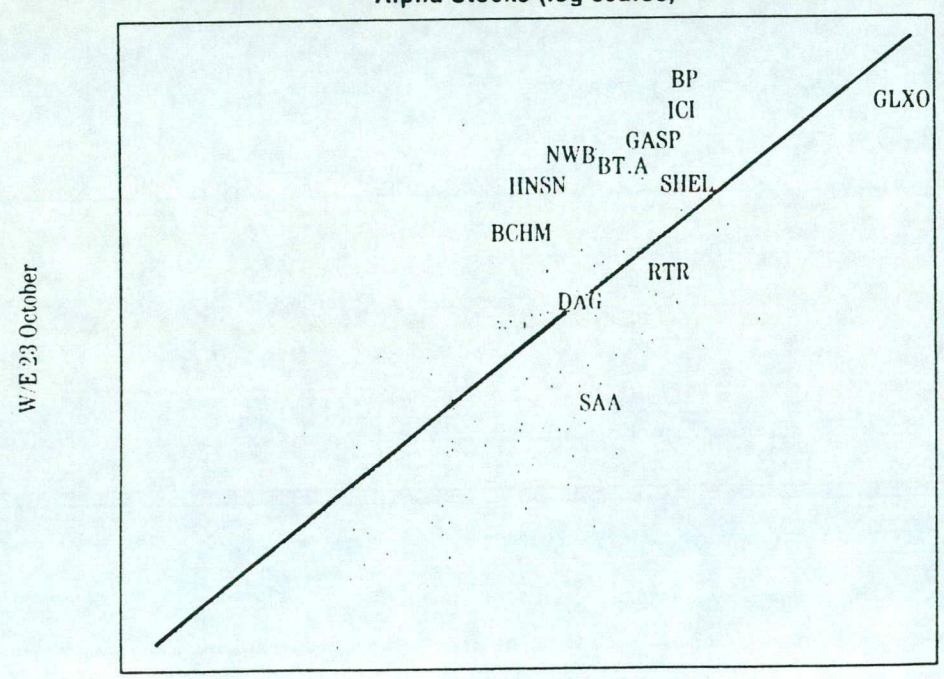


Figure 2.20: Two Week Comparison of Turnover Value Alpha Stocks (log scales)



- The proportion of US turnover which was flowback varied markedly from company to company (from 4% for Hanson through to 38% for Glaxo). From this, while it is clear that US investors were heavy sellers of ADRs (as they were of all types of equity), trading was by no means all one way — there were buyers as well as sellers in the US market for UK shares.

There is nothing here to suggest that US investors were panicking to get out of UK equities. This result is supported by a comparison of trading and net selling of alpha stocks during the crash week with the week prior to the crash. Since the degree of foreign involvement varies among alpha stocks, we would expect to see a systematic bias towards higher trading in those with higher foreign involvement if the argument that foreign investors were dumping UK equities into London was to hold.

Figure 2.20 shows the comparison for the 126 alphas, plotting comparative turnover in the pre crash week and the week of October 19th, with major ADR stocks highlighted by name. No obvious pattern emerges, implying little support for the hypothesis that UK stocks were being dumped by US investors.

It is important to stress that our knowledge in this area is extremely sketchy, and the ISE has very little solid information on investors from overseas. What we do know about US investors arises solely from their holdings of UK stocks in depositary receipt form. It is important to bear in mind that some US investors may choose to hold stock in non-depositary form, while others may have opted not to sell the depositary receipt (which would result in a stamp duty should they decide to repurchase at a later date) but instead may trade in a derivative product to hedge their exposure.

Recovery

This section updates the liquidity situation to the year end. The most apparent change between the pre crash and crash period is the decline in turnover. The number of transactions has been particularly affected with current levels running at between 40% — 50% of pre October levels. The value of transactions has fallen less sharply, suggesting some change in the client

profile. We saw that during the latter part of October, there was an upsurge of small business, which is usually indicative of individual investors. The implication now is that the market is more the preserve of professional investors.

The continued volatility of markets represents increased risk which has brought an unwelcome rise in the cost of dealing and a reduction in market depth. Prior to mid October, the largest daily movement of FTSE was 56 points. Since then daily movements of 50 points and more have become more commonplace (6 daily movements of 50 points or more in November and December 1987). Only when price movements become less extreme can we expect spreads to return to something like the lower levels which prevailed before the crash.

Spreads and touches have narrowed somewhat for alphas and betas but still remain much higher than before October (figure 2.21 and 2.22). Alpha and beta touches at the year end were about double the pre crash level. Gamma touches remained at their high levels with little recovery.

The continuing lack of liquidity (measured by the touch) in gammas suggests that the market for less active securities is not as robust as the alpha and beta markets in times of stress. It is said that because gamma prices are only firm for quotes in over 1000 shares or at the option of the market makers, gamma quotations on SEAQ screens were frequently and persistently unavailable for trading (contrast to our results for alphas).

While it is not feasible to insist that market makers quote firm prices for gammas in 1000 shares, there is a need to tighten the commitment of market makers in gammas to improve price quality. Perhaps a requirement to make firm prices in a significantly smaller size would be more appropriate. This would avoid the risk to market makers from making firm prices in inactive stocks (market makers who trade in gammas experienced substantial losses on gamma positions which they could not trade out) while ensuring that screen prices were available for dealing.

However, while spreads and touches have recovered only slightly there has been a greater improvement in market

Figure 2.21: Av. Percentage Spread — 12/10/87 to 29/12/87
Alpha, Beta and Gamma Stocks

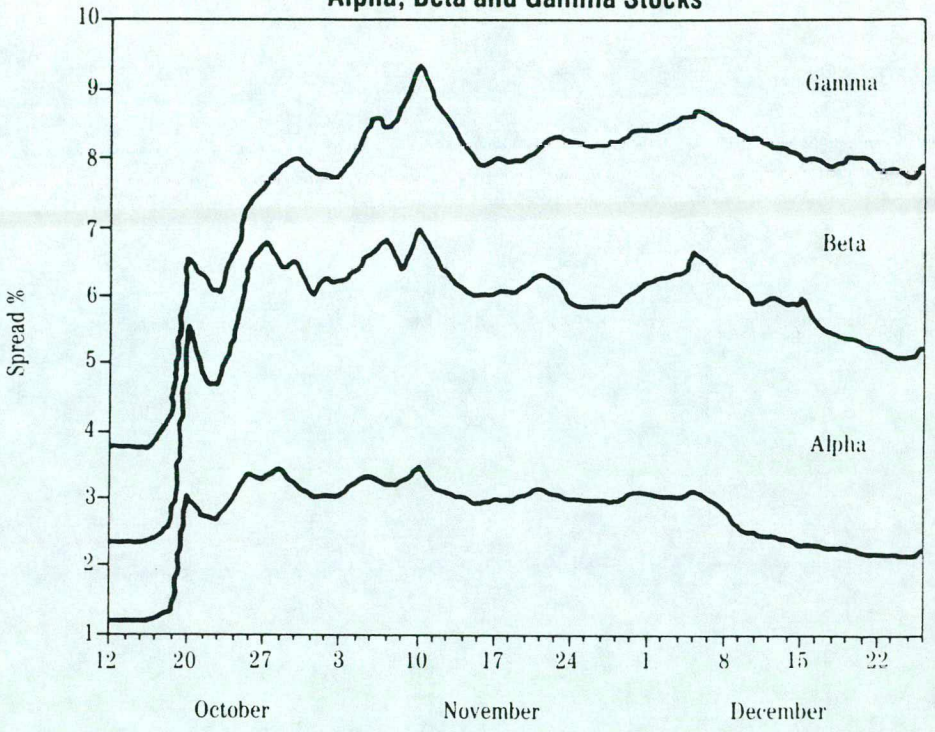


Figure 2.22: Av. Percentage Touch — 12/10/87 to 29/12/87
Alpha, Beta and Gamma Stocks

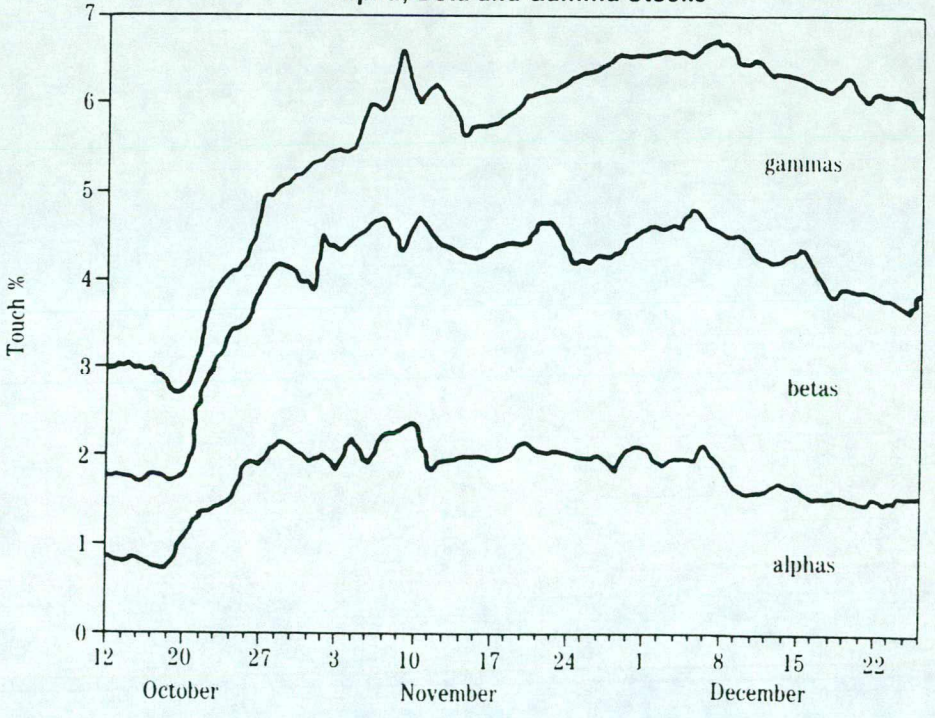


Figure 2.23: Total Market Size — 12/10/87 to 28/12/87
Alpha, Beta and Gamma Stocks

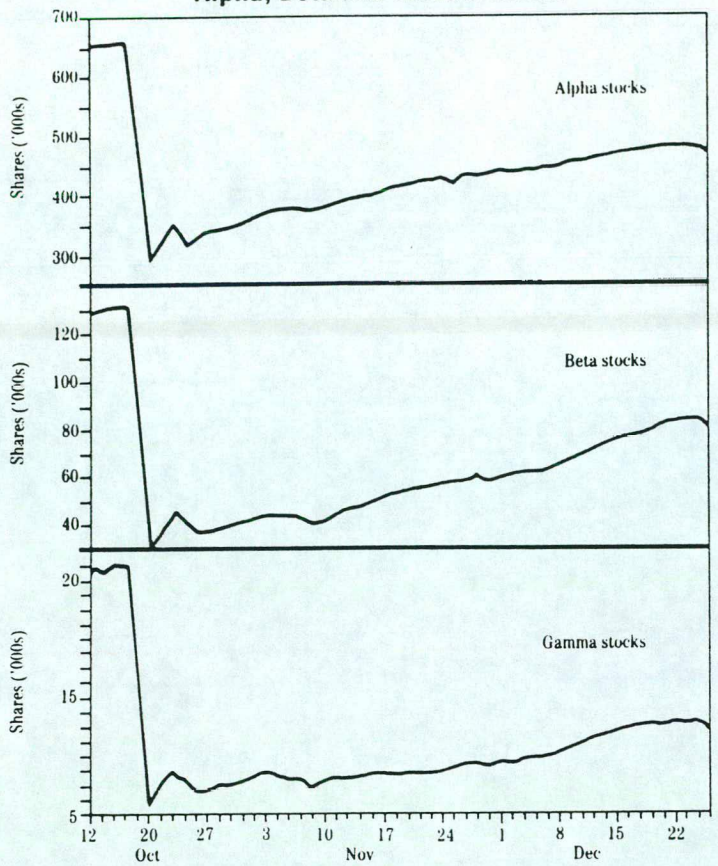
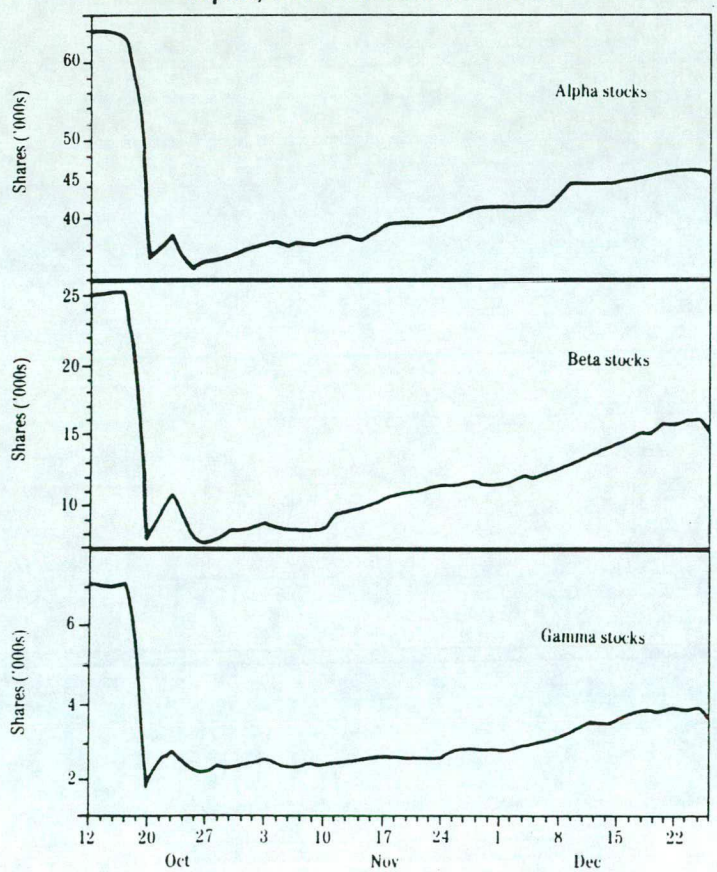


Figure 2.24: Maximum Quote Size — 12/10/87 to 29/12/87
Alpha, Beta and Gamma Stocks



quality as measured by market depth, as figures 2.23 to 2.25 illustrate. In each group of securities — alphas, betas and gammas, the graphs show:

- A recovery of total market size (Figure 2.23)
- A recovery in the maximum size of quote (Figure 2.24)
- A decline in the size premium for dealing at that maximum size.

3. FOREIGN EQUITY MARKET

- During the week of October 19th, over 50% more customer bargains per day were transacted compared with September's daily average.
- Average daily customer turnover value during the week of the crash was £890 million, 69% higher than September's daily average.
- Average bargain size during the week of the crash increased 12% to £159,000.
- Customer turnover in Japanese equities peaked on October 23rd at £331 million, compared to about £60 million per day normally.
- Over 70% more customer bargains per day transacted in US equities during the week of the crash.
- Average daily customer turnover in French equities during the week of October 19th was more than two and a half times the September average.

Introduction

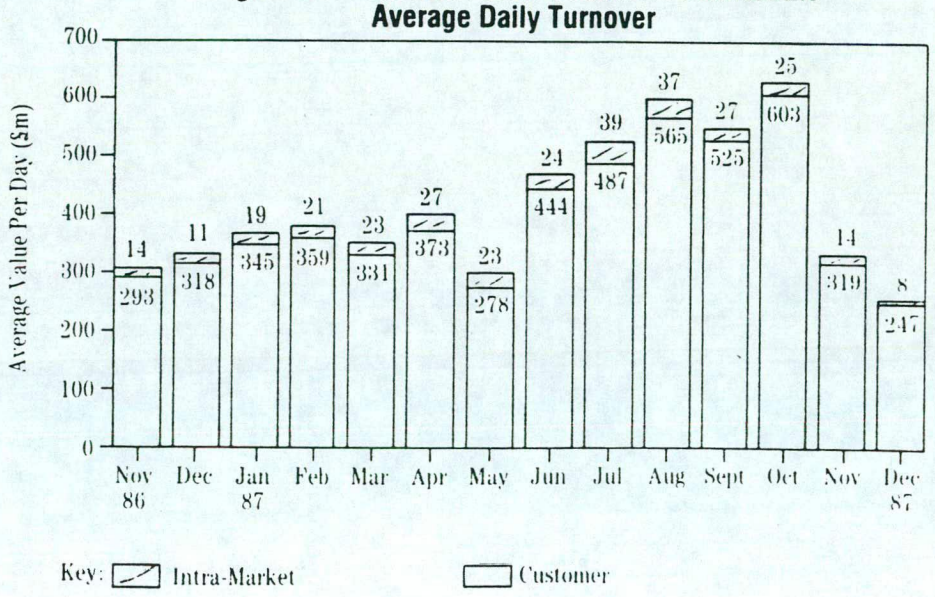
The foreign equity market involves all transactions in equities of companies not incorporated in the UK or Eire. London has the most active market in the world in the trading of non-domestic equities, and the ISE's SEAQ International dealing system carries price quotations for nearly 700 of the most popular stocks.

As markets around the world fell dramatically on the 19th and 20th October 1987, SEAQ International market makers in London were deluged with sell orders. While the debate about the reasons for the sudden change in mood of investors will no doubt continue for many months, this article concentrates on an examination of how the London market in foreign equities performed under the extreme pressures of the week of the crash, and to what extent turnover volume has held up subsequently.

The analysis of transactions for the foreign equity market is considerably more difficult than for the UK equity market. The principal problem in analysing the foreign equity market is the fact that many of the large international houses who account for a considerable proportion of turnover in London are not currently members of the International Stock Exchange, although it is expected that they will become members when the Financial Services Act is fully implemented later this year. As only member firms of the ISE are required to report their transactions to the Checking System, a substantial proportion of trading in London is not included in Checking statistics. In addition, as all non-members are by definition 'customers', a trade between a SEAQ International market maker who is a member and one who is not, for example, is recorded as a customer bargain rather than an intra market bargain.

All market makers including non-members do now voluntarily report their trading in most of the major stocks displayed on SEAQ International, and this has been a useful addition to trading statistics, as well as enhancing market visibility. However, these figures are far less detailed than those from Checking, and do not include many of the bargains

Figure 3.1: FOREIGN EQUITY MARKET TURNOVER
Average Daily Turnover



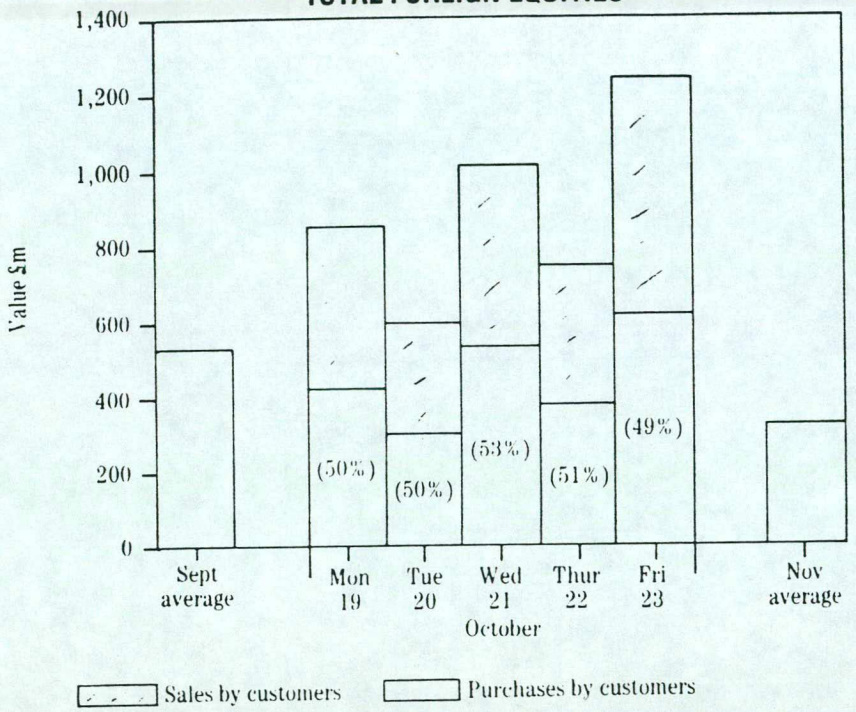
transacted in London by private investors. The statistics used in this report are taken from the Checking System because it provides a much richer source of data. It is important to note that the general turnover trends from Checking statistics are confirmed by those obtained from SEAQ International trade reports.

Trading Activity

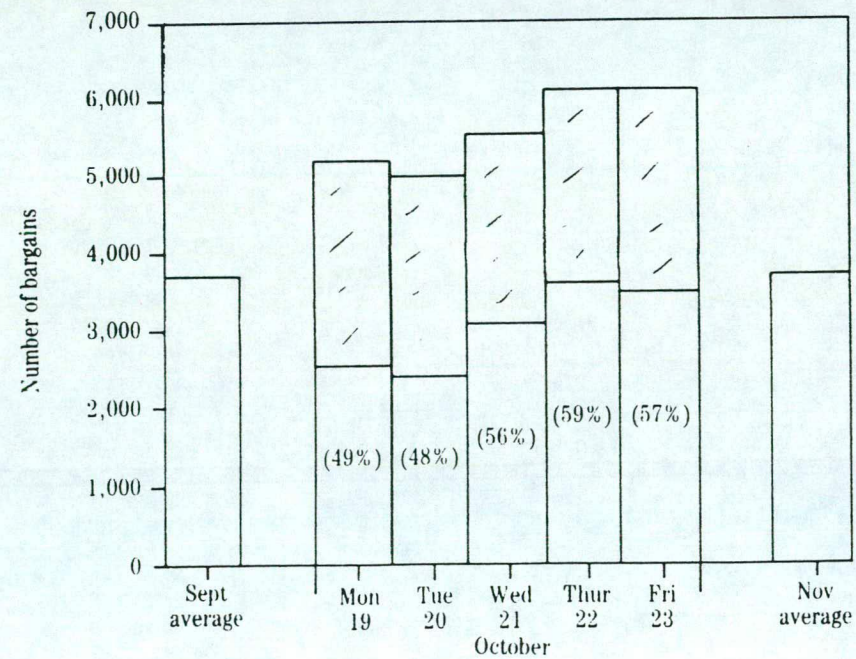
Figure 3.1 shows average daily turnover per month as reported to Checking and illustrates the rapid decline in activity after the crash. Turnover in foreign equities had almost doubled in the year following Big Bang, growing steadily from a daily average of about £300 million in November 1986 to the October 1987 peak of over £600 million daily. Since October turnover has fallen, and by December turnover was showing a year on year decline of 22% by value against December 1986.

The exceptionally high daily average customer turnover in October is due primarily to the very high volume of business during the week of the crash. More detailed analysis of trading in different country sectors is outlined later in this report.

Figure 3.2: DAILY CUSTOMER TURNOVER — TOTAL FOREIGN EQUITIES



Average Bargain (£000's) Size	142	S P	160 165	115 125	196 171	149 105	239 175		86



Activity on SEAQ International

As share prices tumbled around the world, especially on Monday 19th and Tuesday 20th October, it was clear that the sheer number of sellers trying to contact market makers and the unprecedented speed of price movements overwhelmed both human and tecnhological resources. As a result of these conditions, SEAQ International price quotes were declared officially 'indicative only' at 09.14 on Monday 19th and remained so until 14.50. Adding to the foreign equity market's problems were long delays on other information systems such as Reuters, which normally carry up-to-date prices from overseas' markets and, of course, the chaos on the overseas' exchanges themselves.

Nevertheless, trading in London continued effectively by telephone. On Monday 19th, member firms transacted over 40% more bargains with customers with a value over 60% greater than the previous month's average trading levels (see figure 3.2).

Following the record overnight falls in world markets on Monday 19th and Tuesday 20th — the Dow Jones Industrial Average Index dropped 508 points (23%) and the Nikkei-Dow rapidly reached its maximum permitted daily decline of 15% — some overseas houses were ordered by their Head Offices not to quote prices on SEAQ International on Tuesday 20th.

In addition, the Hong Kong sector of SEAQ International was officially closed for the week in line with the closure of the Hong Kong Stock Exchange and market makers in Japanese stocks were not obliged to quote prices in view of the Tokyo Stock Exchange's rules limiting price falls. Despite this, trading on the basis of telephone negotiation not only continued, but once again did so at

considerably higher levels than before the crash, in almo t all sectors (although not, of course, the Hong Kong sector).

There was, unfortunately, often great difficulty contacting market makers to trade. Some investors suggested that they were deliberately not answering telephones. However, given the fact that there was a 40% increase in the number of bargains actually transacted, this suggests that market makers simply did not have the human resources available to answer any more calls than they in fact did. While it would be unreasonable and uneconomic to expect firms to gear up for such unprecedented levels of activity, it is recognised that the efficiency and capacity of the trading system will need to be improved and expanded, and plans to do so are already well underway.

Wall Street staged a record rally on Tuesday night, and this led to much calmer conditions in London for the rest of the week. From Wednesday SEAQ International screen prices were generally once again the basis for trading in the quoted stocks, and turnover volumes continued to increase. Over the week as a whole, the average daily turnover was more than 50% higher than in September, in both volume and value terms.

It is generally agreed that virtually all major investors' orders on the Monday and Tuesday were to sell, and to sell any shares that they could. Indeed, gold shares were being sold at the same time as the gold price was rising. It may appear odd, therefore, that the Checking statistics on these days show an even split of customer sales and purchases through member firms both in volume and value terms. While this is usually the case in normal market conditions, it is not to be expected during a crash. In the UK equity market, market makers had to take a large amount of stock onto their books, especially on Monday. In order to try and explain this surprising balance, turnover in the equities of some individual countries is analysed in detail later.

Liquidity and Depth

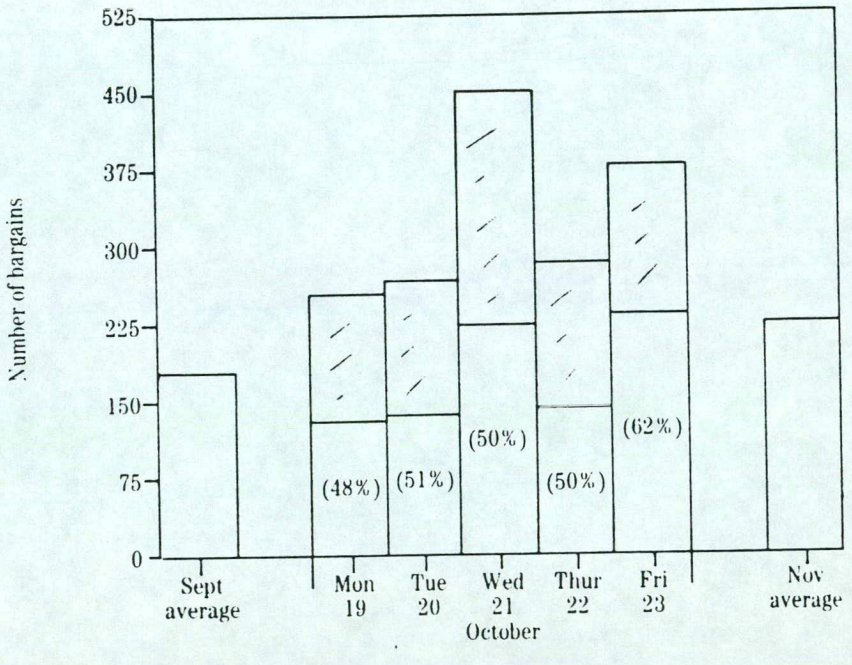
During the initial period of heavy price falls, investors' appeared to differentiate little between different companies' stock, and were selling any equities that they could, in any market that they could. Some market makers claimed that they gained new customers, possibly due to a greater liquidity in London than in overseas' markets. However, liquidity between countries and individual stocks varied, and many smaller stocks became difficult to trade in size.

As figure 3.2 shows, the average bargain size in foreign equities over the week actually increased.

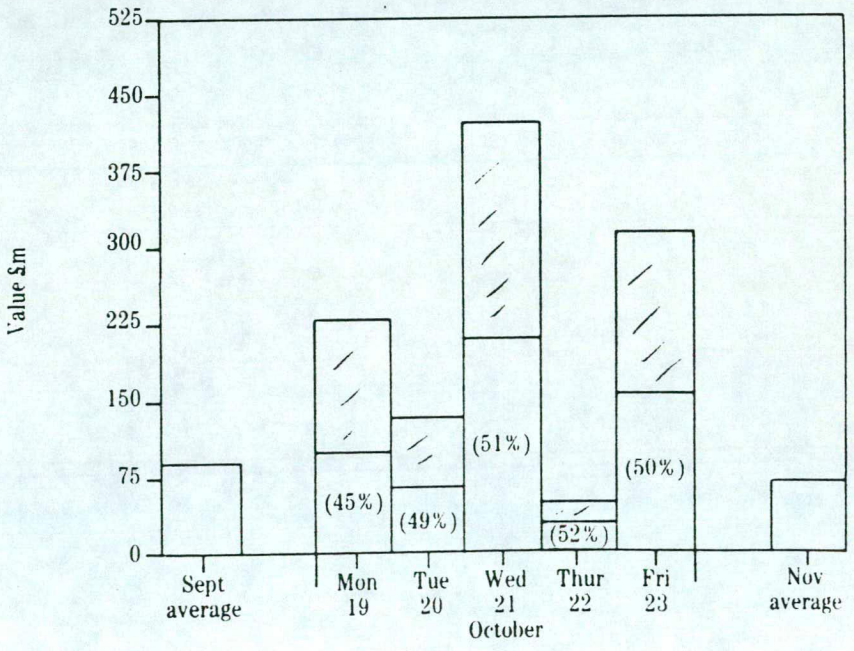
Not surprisingly price spreads widened dramatically, especially outside home market opening hours. Spreads of about three times pre-crash levels seems to have been the norm, although it could be less when reliable home market prices were available.

Both sizes and spreads have improved a great deal since October, but

Figure 3.3: DAILY CUSTOMER TURNOVER — FRENCH EQUITIES



Average Bargain (£000's) Size	499	S P	951 861	502 481	910 947	155 167	1,083 659		304



are still not back to pre-crash levels, reflecting the increased risk in making markets under volatile conditions.

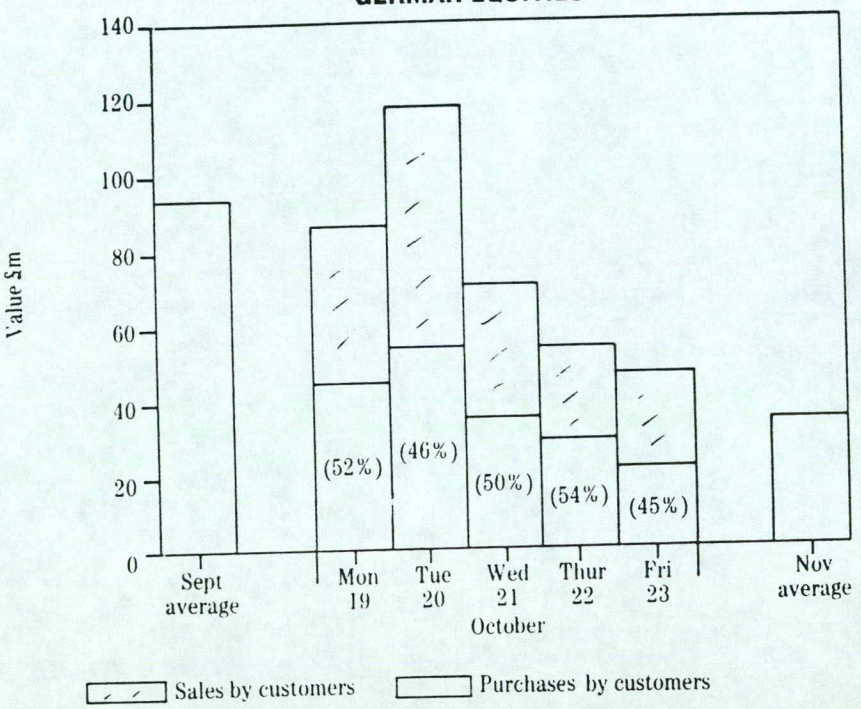
Individual Country Sectors

The following sections provide more detailed analysis of different groups of foreign equities traded on the ISE.

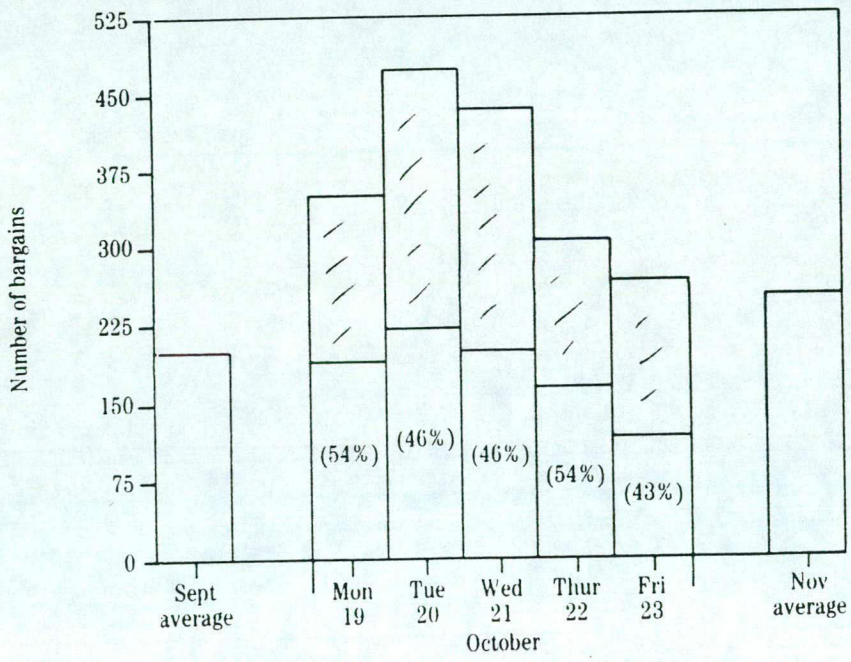
FRENCH AND GERMAN EQUITIES

Turnover in European equities makes up some two-thirds of total foreign equity turnover value, but only about one-quarter of the number of bargains. The very large average bargain size characterises the professional nature of trading in London, with little private investor interest. Also important in the context of the crash is the considerable overlap of home market opening hours with trading hours in London.

Figure 3.4: DAILY CUSTOMER TURNOVER — GERMAN EQUITIES



Average Bargain Size ($000's)	474	S P	259 237	249 248	148 172	172 177	170 181		135



Daily turnover in French and German equities for the week of October 19th are shown in figures 3.3 and 3.4. There are interesting similarities and differences between the two countries.

The most striking difference is that, whereas turnover value in French equities over the week averaged over two and a half times the September average, turnover value in German equities was 20% lower (despite an 85% increase in the number of bargains). The market in German equities was almost unique in this respect. A possible partial explanation for the increase in French equity turnover is that the vast majority of shares on the Paris bourse do not have their prices quoted continuously, unlike French equities on SEAQ International. In addition, the average bargain value indicates that investors were able to deal in very large sizes in London. Both of these factors may well have attracted business.

The decrease in turnover in German equities may have been partially due to investors being reluctant to deal in them in London outside the home market opening hours. The announcement in October by the West German Government of the new witholding tax on investments in Germany may also have had a depressing effect. Why there was such a distinct contrast in trading activity between the French and German sectors is still, however, not clear.

Overall trading in both French and German equities showed only a slightly greater value of customer sales than purchases over the week as a whole. European equities in total mirrored this trend, and as this sector makes up the bulk of trading by value in foreign equities, this balance is the principal reason for the overall balance of sales and purchases in the foreign equity market noted earlier.

The most likely reason for this, supported by our research, is that when London market makers were forced to buy stock from investors they rapidly sold it on to the home markets, which in Europe were open concurrently.

It is also interesting to note that the value of trading in French stocks in November held up considerably better than the average for the foreign equity market as a whole, whilst the value of

trading in German stocks fell to only 36% of its September value.

JAPANESE EQUITIES

The Japanese equity market in London is, like the European markets, principally a professional one. There is no overlap of home market trading hours with those in London.

While the volume of trading in Japan itself fell during the crash, mainly because of the 'limit fall' rule for prices mentioned earlier, trading by ISE members in Japanese equities increased steadily through the week apart from a slight dip on Tuesday, when SEAQ International market makers were not obliged to quote prices following Tokyo's overnight limit fall. The statistics show average daily bargains for the week 127% higher than the September average, with value increased by 243% (see figure 3.5). On Friday, three times as many bargains, and six times as much value was transacted compared to the previous month's average. Average bargain size rose to £400,000, compared to the September norm of about £200,000.

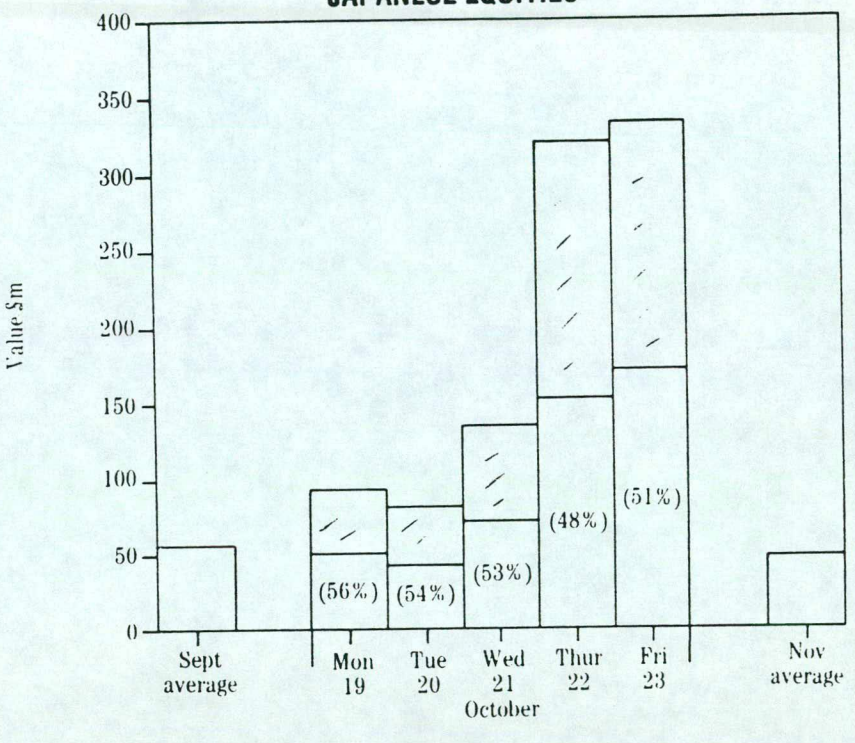
Although the London market was said to be more bearish in sentiment than the Japanese home market during the crash, it appears to have matched buyers and sellers well, and the volume of business transacted certainly supports the suggestion that new customers were attracted to the market at the time. It is also interesting to note that the daily turnover value for November, whilst 14% lower than in September, was considerably better in this respect than for the foreign equity market as a whole.

AUSTRALIAN EQUITIES

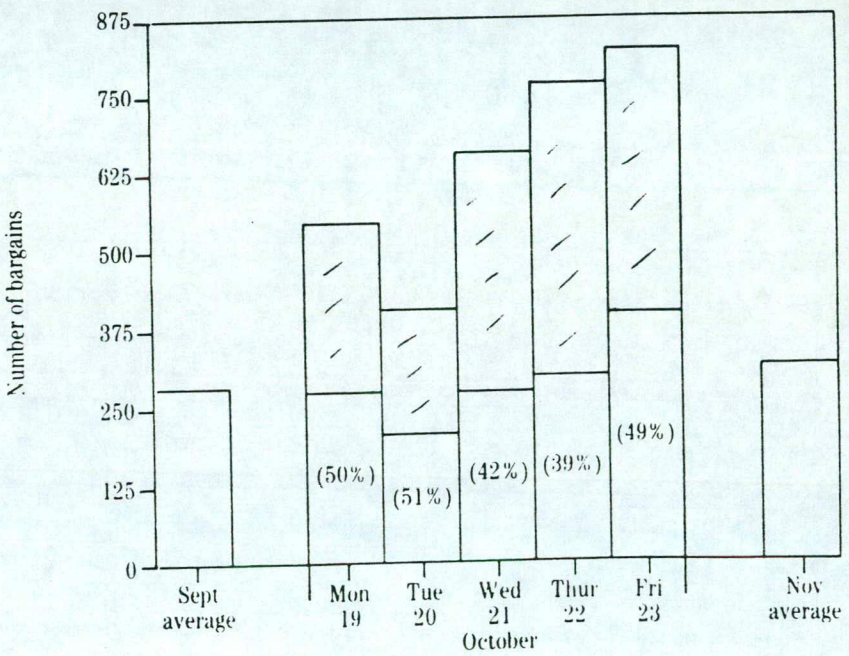
The market in Australian equities in London is considerably different in character from those in French, German and Japanese equities. This is most obviously apparent in the very much smaller average bargain size, only £29,000, for example, in September (see figure 3.6). This indicates the importance of the individual investor in the market which, despite being much smaller in value than those already discussed, transacts about as many customer bargains as all three put together. Like Japan, there is no overlap of trading hours between the Australian home market and London.

What is most interesting is that, just as for the UK equity market, there is strong evidence to suggest that private investors were net purchasers of Australian equities during the second half of the week, whilst institutions continued to sell. This is suggested both by the significantly larger proportion of bargains that were purchases on Wednesday (69%), Thursday (77%) and Friday (68%); and even more strongly by the average bargain sizes, which fell to about £15,000 for purchases whilst rising to about £40,000 for sales. In contrast to most countries, the total value of customer purchases of Australian equities during the week was also 10% higher than the value of sales.

Figure 3.5: DAILY CUSTOMER TURNOVER — JAPANESE EQUITIES



Average Bargain (£000's) Size	199	S P	150 187	183 212	167 255	357 512	386 422		152



The pattern of many more purchases than sales in fact continued in November, but whilst the daily number of bargains during the month was only 10% lower than in September, the daily value fell 58%.

US EQUITIES

Trading on Wall Street begins early afternoon London time, but as the New York Stock Exchange forbids its members to trade in London whilst its own floor is open, trading activity in US equities in London is concentrated into the first half of the day.

With an average bargain size of £51,000 in September, this suggests a fair degree of private investor involvement in this sector (see figure 3.7).

Whilst trading on Wall Street soared over the week of 19th – 23rd October, turnover value by ISE members in London was unchanged compared with the previous month's average. The number of bargains transacted however increased by 71%. This would suggest that professional trading was depressed over the week – many US securities houses were instructed by their Head Offices not to quote prices on SEAQ International during the crash – whilst individual investors traded more actively than usual. The very low value of turnover on Tuesday (after the overnight fall of 508 points in the Dow Jones Index), is particularly striking.

The below-average proportion of customer purchases on Monday and Tuesday, and above-average proportion for the rest of the week, provides a little evidence to suggest that individuals may have been selling at first but then buying after Wall Street's Tuesday night rally, but this evidence is far less conclusive than in the UK and Australian equity markets.

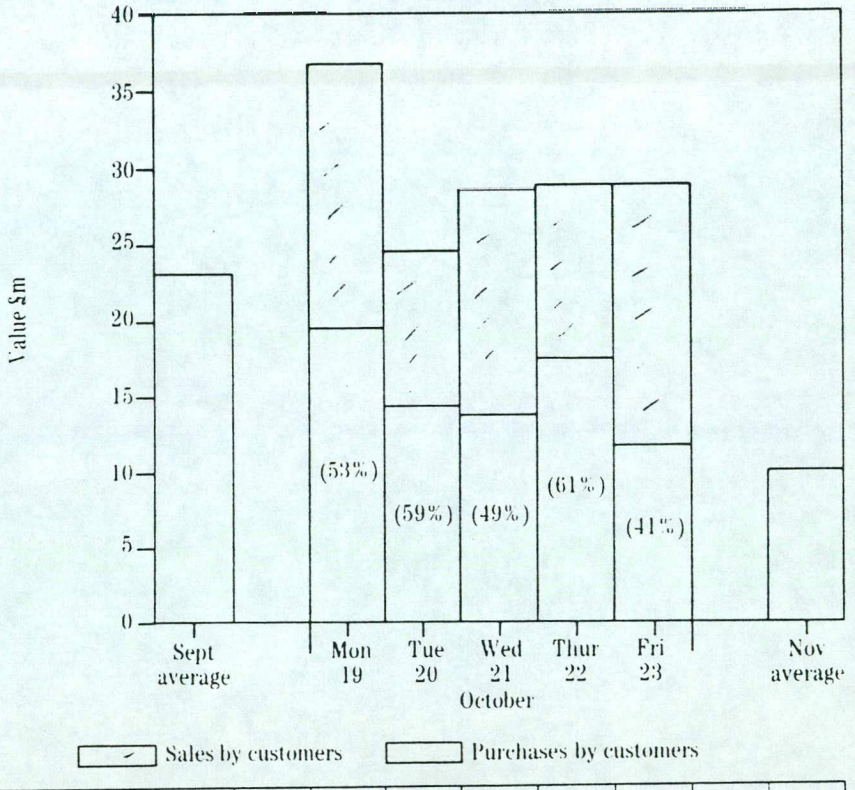
The daily average number of bargains in November returned to the September level, but the daily value fell by just over a third.

Conclusion

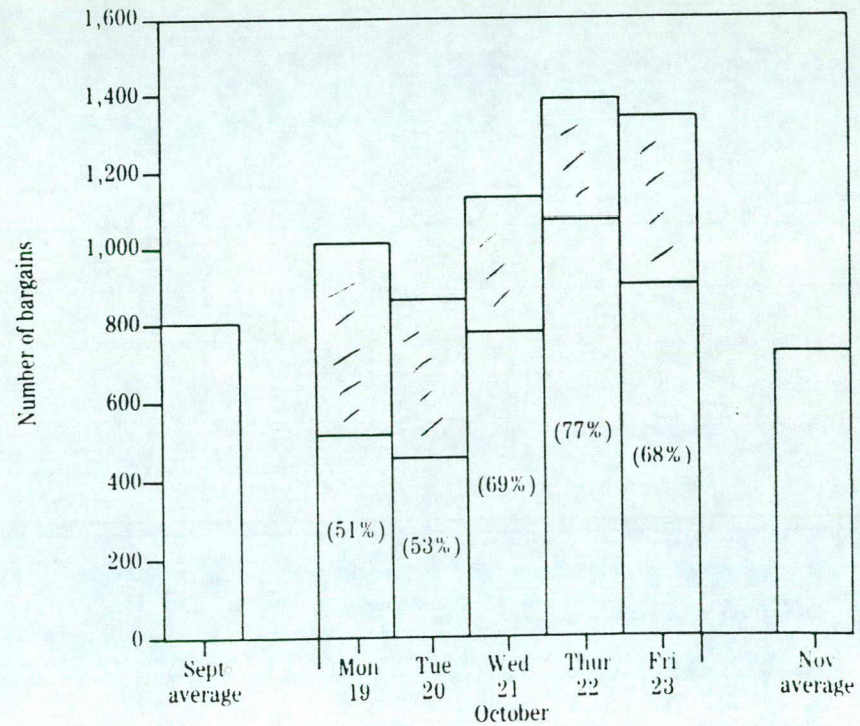
In common with other markets around the world, there were a number of complaints during the period of the crash about the difficulties in trading and obtaining accurate price information in the London foreign equity market. However in hindsight, despite their irritation at the time, many market participants now think that the market performed well, considering the circumstances – or at least that there was little more that could have been done to improve conditions at the time. The trading statistics certainly show London in a very good light.

That does not mean that there are no lessons to be learned from the experience. Whilst it is recognised that it

Figure 3.6: DAILY CUSTOMER TURNOVER — AUSTRALIAN EQUITIES



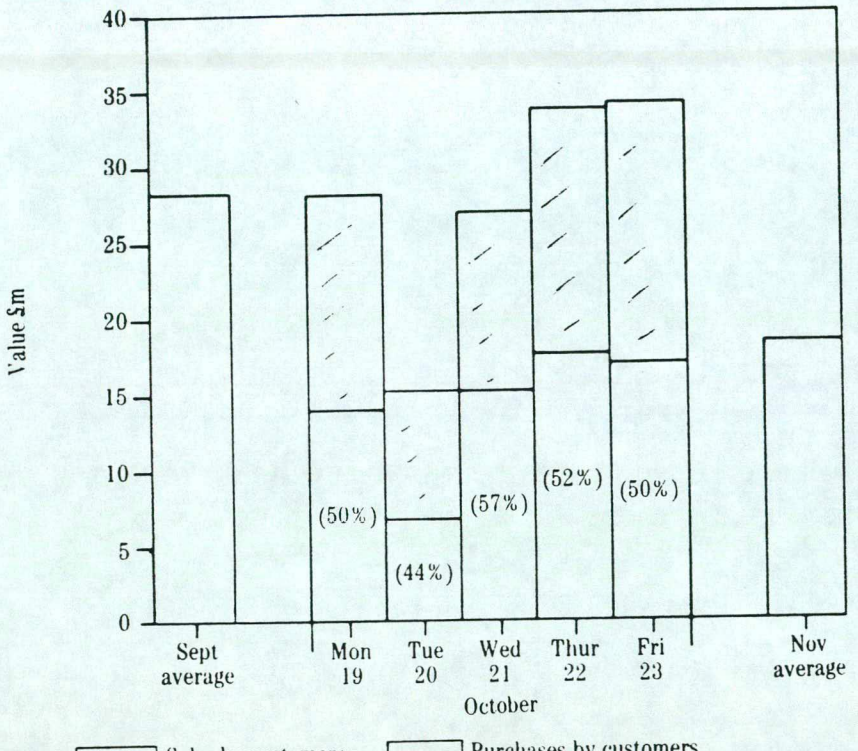
Average Bargain ($000's) Size	29	S P	35 38	25 31	41 18	36 16	39 13		13



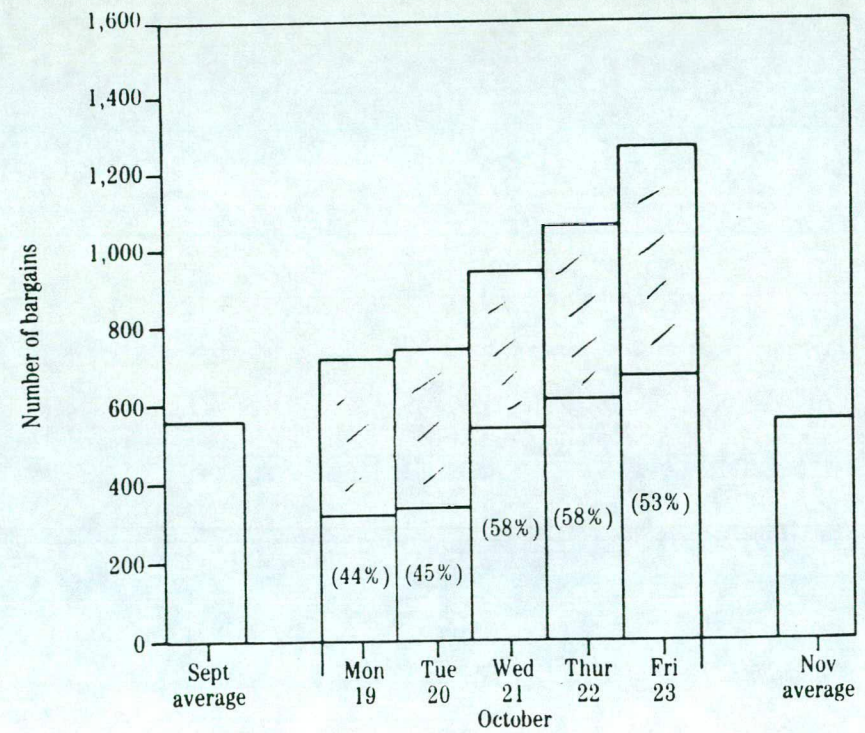
would not be economic to build up systems and staffing levels to cope with enormous unpredictable surges in volume, there appears to be a strong feeling that computer system response times during peak periods require improvement. Long delays in the updating of prices not only lead to them being unrepresentative of the true market, but could also allow market makers to avoid trading. On the Monday and Tuesday of the week of the crash, lack of confidence in the systems caused some market makers to stop even trying to update their prices.

Although it may be coincidence, there is also evidence to suggest that, in general, turnover in the equities of those countries which increased most during the week of the crash held up the best during November. The message could be that those who tried hardest to give the best quality of service during the crash will be rewarded with a greater share of business in the months to come. The others will have to try harder in future. In general, however, the performance of the foreign equity market during the week of the crash should give us confidence in the future of foreign equities trading in London.

Figure 3.7: DAILY CUSTOMER TURNOVER — U.S. EQUITIES



Average Bargain (£000's) Size	51	S P	35 43	21 20	29 28	35 29	28 25		33



4. MARKET INTER-RELATIONSHIPS AND DERIVATIVE PRODUCTS

- All three markets (cash, traded options and futures) saw record volumes during the crash; traded options traded a record 121,000 contracts on October 21st while LIFFE traded over 9,000 FTSE contracts daily on Monday 19th and Tuesday 20th.
- All three markets traded continuously throughout the week of the crash. Spreads increased significantly in all markets as trading risk increased. In general, the size in which deals could be made decreased. Market quality has recovered in all three markets though equity spreads and option premia are still higher than pre-October levels.
- A significant number of investors were short of FTSE puts at the start of the week. The effective closure of the market on October 16th (due to storms) meant that these investors had no opportunity to close positions before substantial losses had been incurred. These investors were seeking to close positions at almost any price on the Monday and Tuesday.
- Margins were raised in the options market on Tuesday 20th, and also at various times during the week for FTSE futures. This, together with the principle of marking to market, ensured the robustness of the markets by limiting the credit risk associated with highly leveraged instruments.
- Index arbitrage and portfolio insurance trading are not yet well developed in the UK. Trading difficulties, largely relating to access to the cash market, restricted index arbitrage even further than usual during October 19th and 20th.
- The absence of effective index arbitrage, combined with the perceived difficulties of access to market makers in the equity market, allowed the FTSE future to trade at a significant discount.

Introduction

This report explores the inter-relationship between three markets — the UK equity market, the London Traded Options Market (LTOM) and the London International Financial Futures Exchange (LIFFE) — during the October market crash. Undertaken as a joint exercise by the ISE and LIFFE, the study comments on the quality of the separate markets during the week of October 19th.

The quality of each market is assessed and compared to previous levels. Because of the diversity of the markets, no single information point is available (indeed, one of the lessons of the crash is the need for more, integrated information on these related markets). Our results are derived from information sources ranging from the exchanges themselves, the clearing houses and from discussions with practitioners.

During the week of the crash, both the UK equity market and the LIFFE market experienced unprecedented selling pressure. The traded options market experienced similar unprecedented levels of trading as investors, who earlier in the year had written put options, sought to reduce their exposure to falling equity prices by closing their short put positions or opening long put positions.

The existence of inter-relationships between the three markets is well known to practitioners in those markets. More recently, particularly in light of "The Report of the US Presidential Task Force on Market Mechanisms" (the Brady Report), the interconnections have become a topic of much wider discussion.

The Brady report concluded that the breakdown of normal feedback or information flows between the markets was a significant, perhaps crucial, element leading to the market break. Two factors particularly influenced their view. One was the breakdown of the use of index arbitrage strategies which maintain the price link between the cash or stock market and derivative markets (futures and options). The other was the lack of a centralised clearing system between the various exchanges. Because proceeds from a sale on one exchange may be required to meet a purchase on another, delays in the movement of such funds introduces risk and the possibility that the system may seize up, resulting in a form of

"financial gridlock", not because of any real insolvency but because of temporary cash flow delays.

These problems are particularly acute in the US because of the relative size of the various markets. For example, the Chicago Mercantile Exchange's S & P 500 futures contract routinely trades twice as much in terms of underlying share value as the NYSE. Price consistency and ease of financial flows are clearly of paramount importance when the level of trading of interconnected exchanges are of similar orders of magnitude.

The position in the UK is markedly different. The derivative product markets, while they have grown rapidly, are still relatively small in relation to the underlying cash market. The combined trading in FTSE traded options and FTSE futures is equivalent to about 20% of UK equity turnover.

The considerable differences in size between the UK markets reduce the risk of a financial gridlock in payments, thus limiting the impact of any problems which may occur, as well as limiting the impact and extent of price anomalies between markets.

However, significant price anomalies did occur between the UK equity and derivative markets and these may have been contributory factors in the crash. This issue is examined in detail later on and results indicate that the way to limit the impact of price anomalies is to facilitate the connections which maintain price consistency between markets. It is unlikely that hindering operations such as index arbitrage, which contribute to price consistency, is a solution to the problem of disconnected markets.

The structure of this report proceeds by examining in detail the type and scope of activity on each of the three markets. We begin by looking at the UK equity market. Much of this has already been covered extensively in Section 2 of this Quarterly. Here, special attention is paid to the alpha stocks which represent the underlying securities on which individual stock options and futures products are based.

This is followed by an examination of the ISE's traded options market and its performance during the week of the crash. We then proceed to look at the LIFFE market, concentrating on the FTSE 100 Index future and its relationship to the cash market. Key features of each market are highlighted, and events are pieced together from which we are able to draw certain conclusions relating to the impact of inter-relationships between these markets.

UK Equity Market

Because our interest is in the cash market in relation to futures and options, the focus is on the most active segment of the market, the alpha stocks. These 126 stocks, as well as being the most consistently active stocks, include the underlying equities for traded options in individual stocks and other derivative products based on the FTSE 100 Index.

The features of the cash or stock market during the crash period which were of key importance in the relationship between that market and the derivative markets, come under three headings — volumes, volatility, market and price quality, and these are outlined in detail below.

TRADING VOLUMES

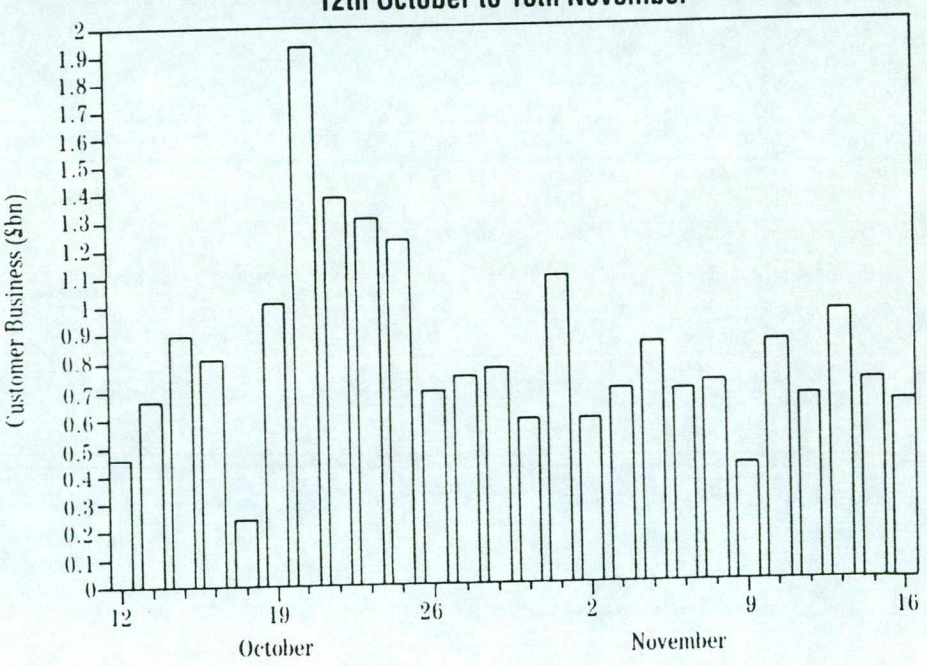
Volumes in the cash market have been growing during the course of 1987 paralleled by the growth of futures and options trading. The proportion represented by alphas has generally averaged between 50% — 60% of the total.

During the week of the crash, turnover reached unprecedented levels. Since sellers were keen to reduce their holdings, and since alphas represented the largest and most liquid stocks, the proportion of UK equity turnover accounted for by alphas was considerably higher at 68% than usual. Figure 4.1 shows the daily turnover in alpha stocks for the three week period 12th October to November 2nd (excluding October 16th when because of the storm, the figures are abnormally low).

VOLATILITY

Price volatility increased very substantially during the crash period and this had important implications for equity market liquidity, options premia and price spreads in derivative markets. Prior to October 19th, the largest close to close change in FTSE was the 56 point drop in August 1987 following the publication of particularly unfavourable trade figures. Figure 2.1 (see page 10) shows daily highs/lows for FTSE in the month of October. Three key features are apparent and have a significant impact on the derivative product markets and the relationship with the cash market:

Figure 4.1 Daily Turnover Value — Alpha stocks 12th October to 16th November



- Large close — to — close daily movements.
- Very large movements between one day's closing and the next day's opening.
- Enormous movements within the day eg. as figure 2.1 shows, October 20th saw an overall downward movement of 67 points but a difference between the high and low of the day of 236.9 points

MARKET AND PRICE QUALITY

The market crash, since it marked a sharp change in market risk, had a serious impact on quality as measured by depth and cost of dealing. Figures 2.11 to 2.14 (see pages 16-18) illustrate four measures of market quality during the four week period, October 12th to November 6th. These results have already been discussed in detail in Section 2 of this Quarterly; to recap, the key conclusions drawn were:

- Alpha spreads (the difference between each market makers bid and offer price quotation), have more than doubled.
- Alpha touches (the difference between the best bid and offer) have also increased but more slowly than spreads.
- Total size of the market (ie. the sum of all market makers bid sizes) was reduced by more than a half.
- A significant size premium emerged.

More recently there has been a partial recovery in market quality for alphas. However, markets remain relatively volatile and the cost of market making remains correspondingly higher than before.

In looking at the question "to what extent were the quotations which were displayed on SEAQ screens actually available for trading?", our analysis comparing quotations and actual transaction prices in Section 2 (see figures 2.17, 2.18 and 2.19 on pages 19-23) revealed very close correspondence between the two.

In summary, while market quality in terms of the widening of price spreads and touches and the reduction in quotation sizes fell, the cash or stock market continued to function at all times during the crash period. Trading was at unprecedented levels, and market makers' quotations provided a fair representation of the market.

London Traded Options Market

In this section we examine in more detail the level and pattern of trading in the traded options market. There has been a high rate of growth in the market since Big Bang. The growth has come in part from the expanded product range — traded options are now available on 59 equities, as well as two gilt options, two currency options and the FTSE 100 Index option, — but more from growing investor and professional use of traded options for hedging and investment purposes.

The period of the crash saw unprecedented volumes with over 121,000 contracts traded on October 21st. Volumes have since declined to an average of 36,000 contracts per day over the last quarter.

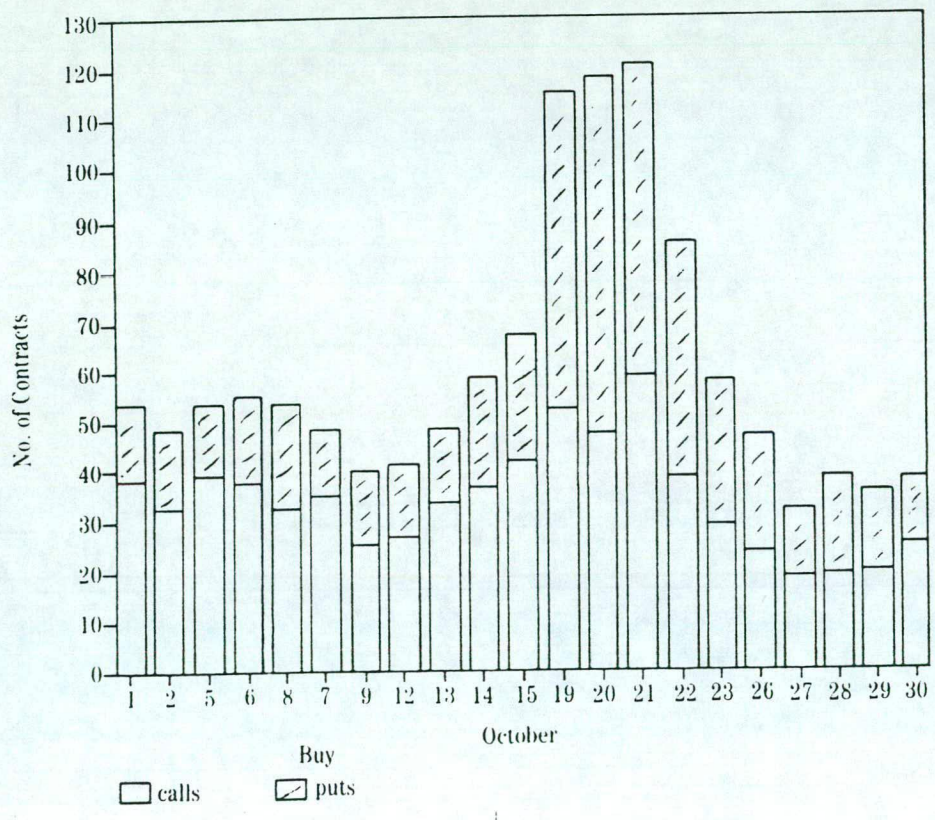
PATTERNS OF TRADING

Two particular features of trading during the week of the crash were different from normal. One was the higher proportion of FTSE option contracts traded and secondly, the higher proportion of trading in FTSE put options. Figure 4.2 shows the number of contracts traded for the pre-crash period and the crash period.

These figures are not surprising given the positions in the market before the crash. It had been a feature of the first part of 1987 that writing puts, particularly FTSE puts, was seen as a safe and easy way of enhancing the yield on a portfolio. Investors as a group had been writers (i.e. sellers) of out-of-the money FTSE puts. Premiums received on these puts had been very small, literally a few pence, but because the risk involved appeared low, the premiums were widely (but not universally) considered to be reasonable.

In the first half of October the situation was that investors as a group were short of FTSE puts, while options' market makers were generally long of (what seemed to be worthless) out-of-the money puts. This meant that investors were exposed to any significant price falls in the market as they, being writers of put options, had taken on the obligation to deliver should FTSE fall below a predetermined level and holders exercise their contracts. (In practice, since the FTSE option is a cash settled option, this means that the writer pays the holder an amount equal to the difference between the actual index and the strike value of the index option multiplied by £10). This exposure of investors was to have significant, and for some very serious,

Figure 4.2 Turnover in Traded Options October 1987



implications in the week of the crash.

Clearly it is dangerous to be exposed in a falling market but what worsened the situation was the speed of the fall when it came and particularly the size of the fall from the close of Thursday 15th to the opening on Monday morning. Recall that Wall Street had fallen heavily on October 15th and 16th. The fall on the 15th was not reflected in London as trading in London was nominal on Friday 16th because of severe weather conditions.

The first opportunity for writers of put options to get out or close their positions was Monday morning when FTSE opened 137 points down and carried on falling throughout the day. Inevitably this meant investors who had sold puts were in the market wanting to close at almost any price to stop their losses mounting further. This is confirmed by the relatively stable level of open interest during the crash period, despite very high volumes of trading.

The distribution of customer trading on October 19th in FTSE contracts is illustrated in table 4.1

This shows clearly the emphasis on closing short put positions during the morning. However, by the afternoon, a more balanced pattern between puts and calls had emerged though still the emphasis was on buying, indicating a mixture of put closing and speculative activity in calls.

In individual stock options, a similar situation prevailed. Options' market makers were typically long of puts (i.e. they had bought put options, thus covering the possibility of a fall in the market) before the crash and were therefore exercising these puts at various times during the crash. The resulting purchases of stock by options' market makers were one of the few factors giving consistent support to the equity market during this period.

OPTIONS PRICE SPREADS

The FTSE option behaved very differently to individual stock options. This is a consequence of different client positions (there were more investors or clients short of FTSE puts than of individual stock puts) and the greater uncertainty about prices as result of the discount on the FTSE futures on LIFFE.

Table 4.2 shows the closing price spread for a sample of six options and the FTSE option, before the crash and after the crash. The spreads are, as far as possible, those for at-the-money options. However, because it is only possible to introduce new series after the end of the trading day, the rapid movement of prices meant that there were often no at-the-money series at the close of business. This makes the movement in spreads more erratic than they would be if all observations were at-the-money. Despite this problem, the pattern of widening spreads is very clear. It is apparent that most of the widening of closing price spreads in individual stock options took place on the 20th.

Spreads on FTSE were especially volatile during the course of the 19th. Indeed, there has been some unfavourable comments about spreads. Table 4.3, which is taken from trade records rather than quotations (spreads are measured by price differences between approximately simultaneous buy and sell trades), shows that spreads were volatile and very large at certain times in the day.

Two points are worth making when commenting on put spreads.

- LTOM is an open outcry market so market makers, in very uncertain conditions, will quote wide prices. They are usually willing to deal inside their quotes. However, on the 19th, put buyers were not stopping to negotiate — in many cases they just wanted to trade at the quoted price.
- There was some doubt about the true level of FTSE especially during fast market periods. This doubt was reinforced by the discount in the FTSE

TABLE 4.1:
Distribution of Customer Trading in FTSE Options on October 19th.

9.05 – 12.00 hours	Buy %	Sell %	Total %
Puts	59	15	74
Calls	22	4	26
	81	19	100

12.00 hours – Close	Buy %	Sell %	Total %
Puts	23	25	48
Calls	46	6	52
	69	31	100

TABLE 4.2:
Closing Quote Spreads for Sample of Traded Options (pence)

December Calls

	Wed 9/9	Thu 15/10	Mon 19/10	Tue 20/10	Wed 21/10	Thu 22/10	Fri 23/10
Hanson	0.5	1	2	4	2	3	3
Sears	2	1.5	2	2	1	.25	2
Glaxo	10	7	10	15	15	10	40
Beecham	5	5	5	10	18	10	10
Circle	5	5	5	10	5	10	10
Amstrad	3	3	3	2	4	5	5
FTSE	5	5	6	80	65	100	100

December Puts

	Wed 9/9	Thu 15/10	Mon 19/10	Tue 20/10	Wed 21/10	Thu 22/10	Fri 23/10
Hanson	1	0.5	2	2	3	5	3
Sears	2	0.5	2	3	3	2	4
Glaxo	10	10	15	15	15	28	30
Beecham	3	5	5	10	8	10	20
Circle	5	3	5	10	10	7	10
Amstrad	3	2	3	3	4	8	7
FTSE	3	3	20	99	70	50	60

TABLE 4.3:
Spreads on FTSE Puts: October 19th (pence)

Time	Oct 2150	Oct 2250	Nov 2150
10.00	158	10	6
11.00	15	93	10
12.00	93	10	—
13.00	85	—	—
14.00	13	20	5
15.00	70	60	35

futures market (which we discuss later) where options' market makers hedge their positions.

DISTRIBUTION OF TRADE SIZES

Based on an analysis of dealing slips during Monday 19th and Tuesday 20th October, size of trades reduced significantly during that time. Normally about 70% of transactions (as represented by dealing slips) are for 10 or less contracts. This was the case for trades during Monday morning, but by Tuesday morning, almost 90% of trades in calls were for 10 or less contracts and all put transactions were within this size.

MARGINING

The high levels of uncertainty during the crash prompted the LTOM to make intra-day margin calls on Tuesday 20th, and also to increase FTSE margins from 7.5% to 12.5% of the underlying value (plus for in-the-money contracts, minus for out-of-the-money contracts). Intra day margins were called between 1100 and 1300 on Tuesday 20th, and increased FTSE margins were implemented for closing client positions on Wednesday 21st onwards. Both measures were designed to increase the credit risk robustness of the market by ensuring investors were more able to cover potential losses from short (put) positions.

INTER-RELATIONSHIPS

The traded options market is highly dependent upon information feeds. Trading in the crowd depends on information on options prices and the underlying asset prices. On October 19th and 20th, the volumes of transactions and number of quote changes on the UK equity market were such that there were significant delays in relaying such information to the screens on the LTOM floor. In fact, a separate, more robust, price and information feed for the floor of the LTOM is maintained but these feeds are still reliant on SEAQ for the data. The delays, together with the doubts about the quality of stock market prices and the fact that price movements were so large that all traded options' series were very considerably in or out-of-the money created very great uncertainty for the options traders. These factors are important in understanding the changes in market quality which the LTOM experienced in that period.

An additional factor which is relevant is the relatively low level of position taking by options' market makers, particularly those trading in the FTSE option. As a rule FTSE market makers will seek to lay-off their position in the LIFFE futures market. Options' market makers in individual stock options will similarly seek to open offsetting stock market positions. Therefore when, as was the case on October 19th and 20th, the level of the cash market was uncertain and when the FTSE future was trading at a discount to the apparent FTSE value on the cash market, it was difficult for options' market makers to hedge their positions, thus increasing their risk, resulting in them making wider price spreads and reducing their size.

London Financial Futures Market

In the futures market we are interested in the market for the FTSE 100 Index future. FT-SE futures account for only a minor part (3%) of LIFFE's overall activity. We examine the trading pattern and level of activity in this market, and concentrate especially on the ensuing discount which arose between the price of the FTSE future and the actual index.

In discussing the FTSE 100 Index futures contract, we begin firstly by looking at normal operations and the typical type and amount of business transacted, before moving on to look at the week of 19th October 1987. It is important to set the scene because the contract has a number of characteristics which are quite distinct from those of US index futures contracts, e.g. expiry procedures, taxation and regulation. Without preempting any conclusions which may be drawn from this study, it is fair to say that these characteristics have direct bearing on the types of trading — programme, arbitrage, portfolio insurance — which are being closely scrutinised by US regulators as they seek to determine the effect of the interplay between cash and derivative markets during the crash.

As this is the first time we have discussed financial futures in this publication, it will be worthwhile to outline the major features of this particular financial instrument for readers who may be unfamiliar with this market. More detailed explanation of how the futures market operates can be obtained from LIFFE directly.

Like traded options, futures contracts are legally binding agreements made on the trading "pit", to buy or sell something in the future. This could be livestock, a foreign currency, or some other commodity.

A future on a stock index, like the FTSE 100 Index, represents the equivalent of a stock portfolio of FTSE companies. It is a contract made between a seller (or writer of the contract) and a buyer (the holder of the contract), who have agreed on a price for the contract. That price reflects, in effect, the best expectation of the likely future value of the FTSE index.

When you buy a FTSE 100 Index futures contract you will gain if the stock market, as reflected in the index, is going up. If you sell a FTSE 100 Index futures contract you will gain if the stock market is going down.

The major difference between a future and a traded option is that with a futures contract, actual delivery must take place on the fixed date in the future at the price agreed today. Traded options give the holder the right to take delivery

but he can choose not to. For this choice he pays a premium to the writer.

The London FTSE derivative market overall is shared more or less equally between FTSE options traded on the LTOM and futures traded on LIFFE. One final point to note is that a one point movement in the FTSE futures price is equivalent to 10 FTSE index points.

TRADING VOLUMES AND OPEN INTEREST

Since their inception on May 3rd 1984, FTSE futures have been slow in gaining depth and liquidity compared to index futures on overseas' exchanges. This relatively slow start contrasts with the popularity of other index futures contracts overseas such as the S & P 500 Index future in the US where average daily volume was 77,000 contracts in 1986, and with more recent index future contracts in other overseas markets such as (pre-crash) Hong Kong's Hang Seng Index, Sydney Futures Exchange's Australian All Ordinaries Index future and Simex's Nikkei futures in Singapore.

Following Big Bang and during 1987, FTSE futures started to consolidate and grew considerably, both in the levels of volume and in open interest. Average daily volume for January to September 1987 (inclusive) was around 1600 contracts, a fourfold increase on 1986's daily average.

Open interest shows a similar pattern with over 6,000 contracts in the first nine months of 1987, compared with typical open interest level of about 2,000 contracts in 1986.

"Non-member" open interest in FTSE futures runs substantially higher than in any other contract traded on LIFFE. A distinction is made in recording "member" and "non-member" or client transactions. In the case of FTSE, "non-member" open interest runs at about the 75-80% level. This strongly suggests extensive outside interest in the contract, and, by contrast, relatively little market maker or LIFFE member participation. Other surveys confirm that this is institutional rather than retail business.

One final point that should be emphasised is that the FTSE futures market is a market for executing client orders rather than of principal to principal trading. There are some "locals", principal traders who are trading for their own account, but the major part of the business is client orders which are transacted in the pit.

ACTIVITY DURING THE CRASH

Total volume traded in FTSE futures in the week preceding the crash was 12,430 contracts, averaging 2,486 daily. This compares with an average daily volume in 1987 up to October of 1600. In the week of October 19th, all volume records were broken. Total volume increased to 29,971 contracts (an average daily volume of 5,944). Both October 19th and 20th saw volumes over 9,000 contracts per day, with Tuesday standing as the record at 9,251 (see figure 4.3). Trading was all in the December contracts with no trading in the March contract or the spread.

Further volume records were established vis-a-vis the cash market. On Monday 19th and Tuesday 20th, FTSE futures turnover (in value terms) was 17% of equity market customer turnover, compared with an average for August and September of 10%.

These figures indicate that futures were used more and not less over the week of October 19th. The trend in open interest showed a gradual increase from 7,371 contracts on 12th October to 9,317 on 23rd October. Although confidentiality forbids a detailed analysis of this figure, there are some observations which can be made.

- Although 9,000 contracts for open interest is the high end of the range up to October, it is not a new record. This suggests that if there was sudden opening of new positions — say by Portfolio Insurers adding to positions — there was also substantial closing of open positions.
- There was some change in the make up of open interest. Some short positions were closed, while some new ones were initiated and there is some indication of completely new business.
- Within the open interest cycle, open positions were relatively small. That is, following the September expiry, the portion of open interest which rolled off was only just beginning to be reinstated.

VOLATILITY

Volatility (expressed in terms of the daily range of the futures price i.e. difference between the daily high and low) of the futures market increased significantly in the week ending the 23rd October (see figure 4.4). In the week

Figure 4.3 LIFFE FE-SE 100 FUTURE DAILY VOLUME AND OPEN INTEREST 3/8/87—9/11/87

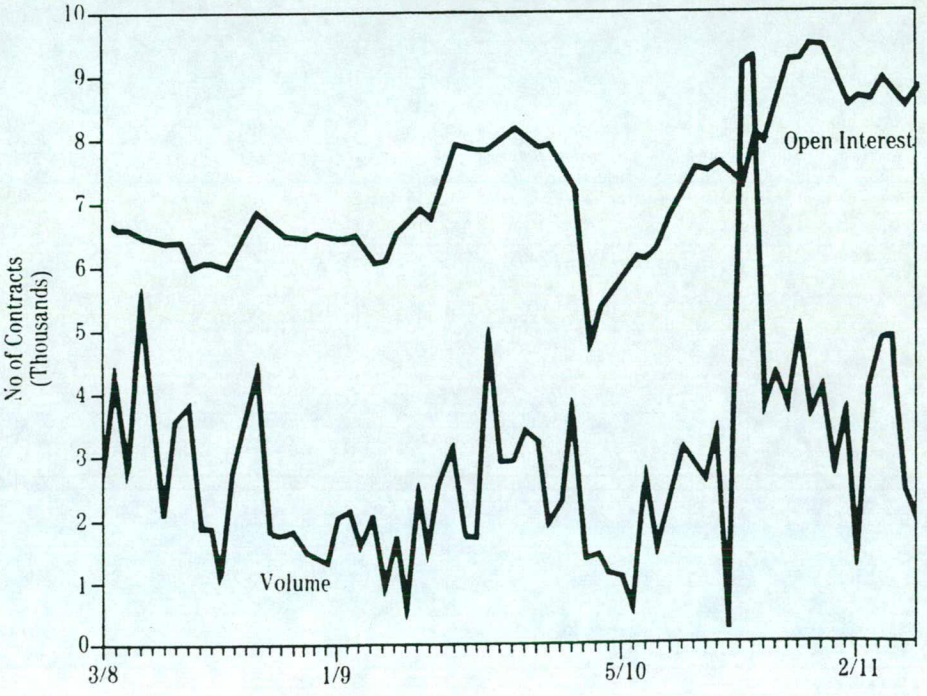


Figure 4.4 Relative Volatility — Daily Ranges FTSE 100 Index & FTSE Future 1/10/87 — 30/10/87

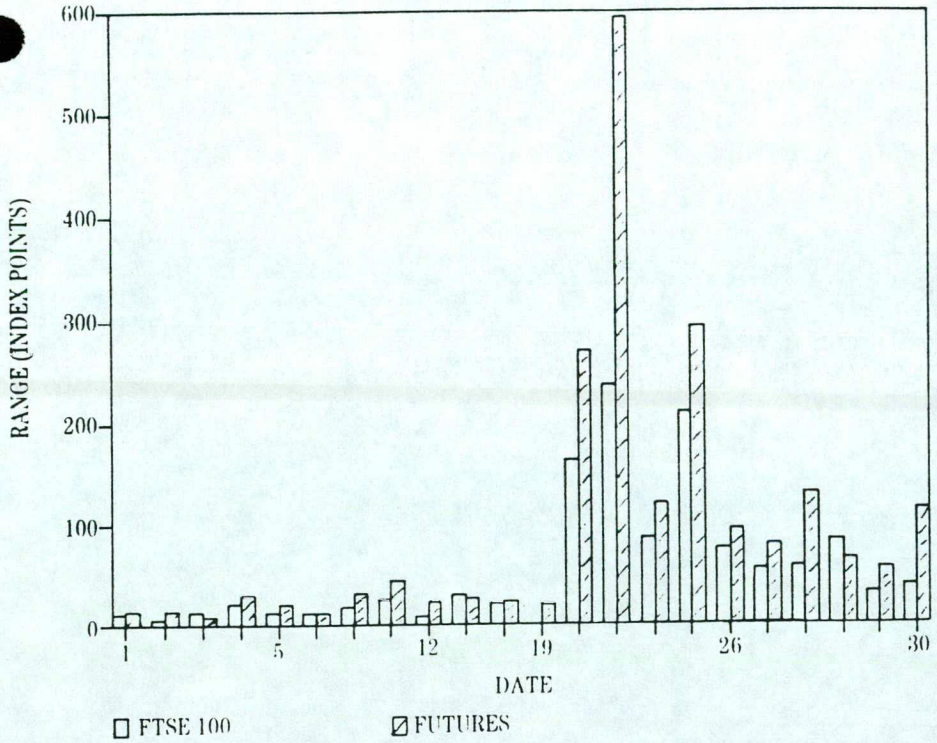
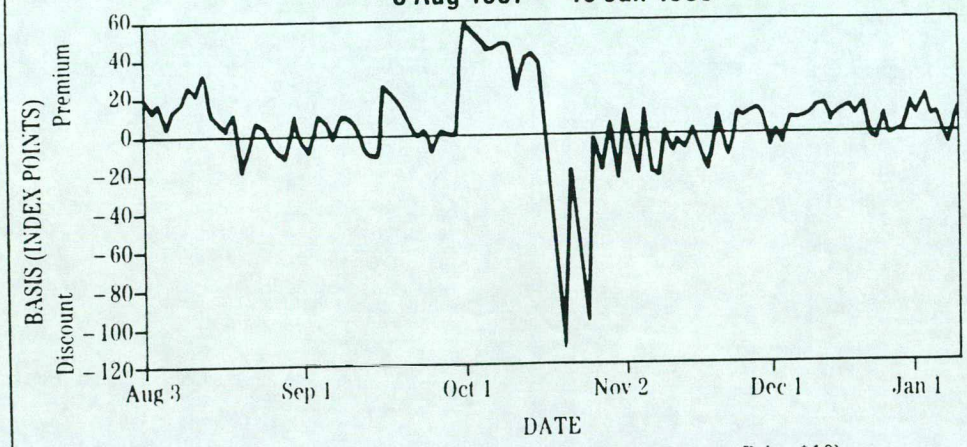
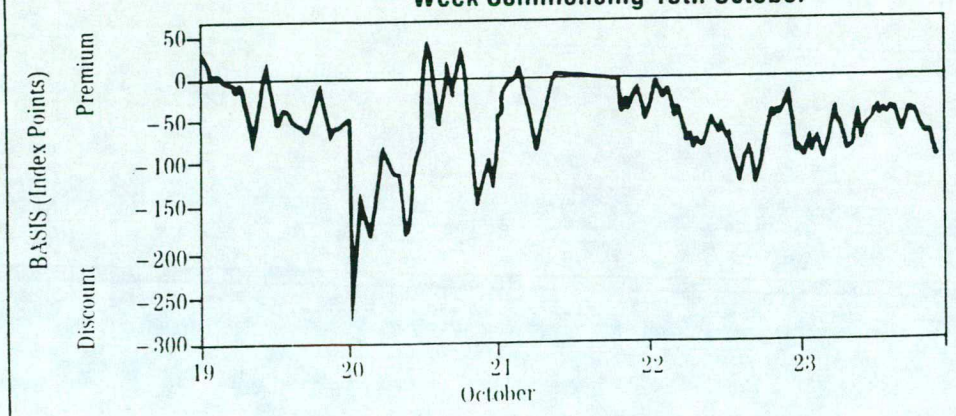


Figure 4.5 Nearby FTSE Futures Basis 3 Aug 1987 — 15 Jan 1988



(Basis = FTSE 100 Index minus FTSE Futures Price *10)
(Source: ADP Comtrend)

Figure 4.6 FTSE Futures Basis Week Commencing 19th October



(Basis = FTSE 100 Index minus FTSE Futures Price *10)
(Source: ADP Comtrend)

before the crash the daily range was between 20 and 45 index points. In the week of the crash, the daily range was between 95 and 595 index points.

October 20th was exceptionally volatile with the opening range (difference between the high and low price during the first two minutes of trading) accounting for 60% of the total day's range of 595 points. This was exceptional as the average movement of the opening range up to the 20th was only 19% of the total daily range.

In the week before the crash the future closed between 22.5 and 43 index points over the cash index — that is, around or slightly over the fair value premium. This is typical of the cash futures relationship during the bull market of 1987. The week of October 19th saw greatly increased basis shifts (difference between cash index and future's price). Futures basis ranged between 60 points over and 350 points under the index (see figures 4.5 and 4.6). It is important to emphasise that this particularly large discount was only temporary, lasting 3-4 minutes on Tuesday morning. A more representative discount figure for the week was 60 points. Taking into account the fair value premium, this represents a 5% discount, i.e. people were willing to sell futures at a discount of 5% to the quoted index level.

PRICE AND MARKET QUALITY

The best way to analyse price quality is to look at the bid-ask spread and the movement between trades. In the week ending 16th October, the average bid-ask spread was between 1 and 2 index points with spreads of up to, but not exceeding 5 index points 0.21%. The average move between trades was 0.5 index points with the most extreme movement of up to 10 index points, or approximately 0.4%.

The following week saw the average bid-ask spread widen. The lowest average day's spread was on Monday 19th at 3 index points. The highest, unsurprisingly, was Tuesday 20th at 11 index points. By Tuesday the market had fallen substantially, so this 11 index point spread equates to about 0.6%.

The average move between trades increased to 4 points (0.2%). The most extreme move was 100 index points (5.8%). All the six moves of this

magnitude were experienced on the opening of the Tuesday morning. By far the widest bid-ask spread was on the morning of Tuesday 20th when spreads of up to 70 index points (4%) were in the market and the volatility between trades was extreme. However analysing the frequency of different spreads throughout the week of the crash reveals that, for the majority of the time, the bid-ask spread was under 10 points — i.e. for most of the week there was a two way price with a spread not exceeding 0.5%.

MARGINING

The increased volatility and dramatic shift in prices resulted in increased margin requirements, both as initial margins were raised, and variation margins ("marking to market") were increased. A two-way market continued to be made and the average size of trades actually increased to 8 contracts during the week of the crash compared to an average size of 7 contracts in the previous week.

The initial margining system is based on the maximum price movement expected in a single day (the margin is derived from the standard deviation based on historical price movements). If the price moves by more than that covered by the initial margin then it is possible for an intra day margin call to be made to cover the price movement. There was no evidence of "forced closing" in London. Investors were generally able to meet margin calls without selling assets.

During the week of October 19th, several intra day margin calls and increases in initial margins were made:

- On 19th October, an intra day margin call was made on all long positions of £6,000 (representing 160 FTSE index points).
- On 20th October, an intra day margin call was made on all long positions of £7,500 (representing 300 index points).
- On 21st October, the initial margin was increased from £1,500 to £5,000 (representing an increase from 60 index points to 200 index points).
- On 22nd October, an intra day margin call was made on selected positions of £5,000 (representing 200 index points).
- On 2nd November, the initial margin was increased from £5,000 to £7,500 (an additional increase of 100 index points).
- On 16th November, the initial margin was reduced to £5,000 (representing a decrease of 100 index points).
- The current initial margin stands at £4,000 (representing 160 index points).

TYPES OF BUSINESS

We now move on to examine the different types of futures trading in general and how this changed during the period of the crash. It is important to note that several trading mechanisms commonly used in the US are not widespread in the UK because of the much smaller size of our derivative markets and the existence of certain structural features of our markets.

It is important to look at each of type of trading before proceeding to examine the pattern of trading during the crash, because the breakdown of types of users of the FTSE futures differ from the breakdown of users of US futures. This becomes crucial in understanding the events of the week of October 19th took place.

- *ARBITRAGE*

Arbitrage and index enhancement accounts for a major percentage of volume in the US index futures. Estimates of between 20% — 30% of the volume in futures and individual stocks on any particular day have been ascribed to this form of "program" trading. The arbitrage is normally done by market traders who are running a flat or balanced book, trading on pricing anomalies between the futures and equity markets. Index enhancement is very much institutional based, and is similar to arbitraging except investors start from a long asset.

Use of both these types of transactions are very limited in FTSE futures in the UK. There are at most a handful of equity market makers who have dedicated systems set up to undertake arbitrage activities, and there is no index enhancement at all. The reasons for this are legion, but the key limitations relate to a number of structural factors on the UK market:

— Tax and Stamp Duty (plus Institutional worry about tax positions and added costs which transaction taxes imposed on trading).

— Cash settlement expiry procedures in the UK market which means that the arbitrage is not "locked in" i.e. it is not a perfectly riskfree trade.

— Lack of automatic execution facilities for UK stocks prevents guaranteed execution and so introduces risk.

— Lack of credits for Index futures positions in the ISE capital adequacy requirements.

- *HEDGING*

There is only limited hedging by the UK equity market makers. There are indications of a very small number of sizable hedges by institutional portfolios, but portfolio insurance is at best embryonic in the UK. Traded options market makers use FTSE futures actively, as they are the only means of hedging the FTSE options book.

- *TRADING*

There are a small number of locals, who trade regularly, but nowhere near the legion number of local traders in the index futures pits in Chicago.

- *RETAIL*

Before the crash a FTSE futures contract was worth about £60,000 (as opposed to about £24,000 for an LTOM FTSE option). This size discourages retail trade.

ACTIVITY DURING THE CRASH

Only a small amount of arbitrage activity took place during the week of October 19th and little of this was conducted by the normal arbitrageurs. Either they "had better things to do", or, in the case of the most sophisticated, were unable to use internal automated execution with their own market makers who were already very long of stock. Those who did arbitrage found particular difficulty executing small baskets of stock in the cash market; some complained that they could not contact market makers to deal.

Estimates indicate that arbitrage cannot have accounted for more than £50

— £70m at the outside. Taking 1700 as a representative futures price at that time, this means that perhaps 1200 to 1700 contracts can be attributed to arbitrage. It is estimated that about £100m dealt in FT-SE futures was attributable to portfolio insurance strategies. This means that arbitrage and portfolio insurance strategies together cannot have accounted for more than 10% of LIFFE's volume in the week of the crash. In relation to the cash market this represented a minuscule proportion (on a comparable basis, UK equity trading was £6.8 billion in that week).

Only a very limited amount of activity was seen by traded options market makers' hedging, since the volatility of the futures basis deterred them from doing so. On the other hand, equity market makers made increased use of futures. The uncertainty and risk of taking on stock may have been the main reason for equity market makers, who normally do not use futures as a hedge, to use them on this occasion.

There were still locals in the pit, and there seems to have been reasonable trading activity. However, some traders commented on the difficulties of trading associated with the volatility in basis. Equally, however, they noted that substantial business could still be executed.

In summary then, during the crash the balance of trade seems to have changed. There was less traded options hedging, but more equity market maker hedging and only a limited amount of arbitraging.

Inter-relationships and Concluding Remarks

We have examined in detail the types and levels of activity on the UK equity market and the two derivative markets, the LTOM and LIFFE. The inter-relationships which exists would tend to suggest that selling pressures on all three markets was exacerbated. Let us explain more fully.

Firstly, we have seen that the mechanisms which link the futures and cash markets in the US are not used to any significant level in the UK, and also the size of the futures market in relation to the underlying cash market is smaller than in the US. Portfolio insurance is in its infancy in the UK — insured funds are certainly less than £1/4 billion. While index arbitrage occurs in the UK, difficulties of executing complex trades in the cash market at guaranteed prices, together with special features of FTSE futures and UK taxation law, combine to limit its extent.

While the destabilising impact of portfolio insurance and index arbitrage were not an issue in the UK, it is another thing to suggest that the discount to which FTSE futures went had no effect in the cash market. Clearly, the existence of very large discounts on FTSE futures, which were broadcast throughout equity dealing rooms of many member firms throughout the City, must have unnerved the cash market traders.

Normally some arbitrage would have been in operation to keep the markets in line, but during the crash period this was not the case. The normal arbitrageurs were not in evidence as it had ceased to be a "riskfree" trade because of the pace of price changes and difficulties in executing orders. Of the handful of people who did undertake arbitrages, buying the futures and selling the stocks, they found the futures slightly higher than was indicated on the screen, and the index some 30 to 40 points lower by the time they had dealt in sizes up to £5 million. A selling order of this size in the equity market may have taken much longer to execute given the reduction in market makers quotation sizes and difficulties of access.

It is important to stress that major futures strategies, particularly index arbitrage, was only in evidence in a very limited way. It is because they were limited (and thus not effective in erasing pricing anomalies) that the discount between FTSE futures and the cash index reached the proportions it did.

The question remains, "why did the discount occur?". It is too simplistic to say that the heavy selling pressure in the futures market caused the discount without asking why sellers were willing to accept a discount of typically 5% to the quoted index. Two reasons may explain this.

It could be that sellers did not believe they could deal, especially sell, in the cash market immediately. Expecting further falls and unwilling to risk waiting, investors decided to liquidate their positions by selling the FTSE futures instead. Bearing in mind the size of the discount at certain times, such a rationale would imply that these sellers must have had extremely poor expectations of the time which would elapse before they could trade the underlying stocks.

Alternatively, sellers may not have believed the cash market prices were real and available for trading. Believing this to be the case, investors may have thought that the futures price was indeed the "real" market price, and thus continued selling the future.

In fact, as our research has shown, SEAQ prices were generally a good indicator of trading prices. On the question of accessibility to equity market makers to execute orders, we can only point to the record volumes of transactions, of which a higher proportion than normal were customer orders as opposed to intra-market business, which suggests that market makers were indeed providing a continuous market. However, the experience of those trading simultaneously in both the cash and futures markets suggests that, because of access difficulties in the cash market, some investors may have chosen to deal in a discounted market because it was more accessible and so provided certainty of execution.

What we do not know is how many orders did not reach the market makers for whatever reasons. We have already seen that record volumes of business was transacted on all markets. The issue of accessibility essentially rests with decisions regarding capacity levels. Like most industries, decisions need to be made concerning how much capacity to build into a system to cater for abnormal peak times.

If it is true that a significant number of customer orders failed to be executed swiftly or executed at all because of capacity constraints — there is only a finite number of market makers, dealers and telephones — then it is a real concern for the ISE as this affects not only the immediate, but also much longer term, quality of its markets.

Given the present capacity of the trading system and the current size of the

industry, our investigations into the efficiency and effectiveness of the ISE's trading systems reveal that on the whole the systems coped well under the exceptionally high level of activity and pressures; despite the widening of price spreads and the reduction in size, a continuous two way market was maintained at all times during the trading day. Despite fast moving conditions, the SEAQ system provided quotations which fairly represented the market.

Decisions regarding individual member firms' operating capacity in terms of human and technological resources are matters for firms themselves to make based on their own commercial outlook. From an exchange's point of view, it is essential that policies and plans are developed and implemented which aim to minimise adverse conditions which may impede the efficient execution of business for the investing community at large.

While it is not for an exchange to judge whether investors' decisions to buy, sell or hold securities is right or wrong, it is the function of a good quality exchange to provide the mechanism which can carry out investors' decisions in the most cost efficient and effective way. In doing so, the market mechanism should be able to accurately reflect such actions and sentiment via the prices which it transmits, and in addition to this, it should be able to absorb and reflect new information as quickly as possible.

Our studies into the efficiency and effectiveness of London's market mechanisms have revealed two distinct areas where development must take (and is already taking) place to help minimise the difficulties experienced during the crash.

Firstly, it seems clear that the existence of wide pricing anomalies between the cash and derivative markets demonstrates the need for the London markets to encourage techniques, such as index arbitrage, which help to provide convergence in these markets so that an efficient means of risk transfer can be achieved.

Secondly, there is a need to provide more speedy execution services so as to increase the cash market's capabilities to execute (and settle) transactions more efficiently and, in turn, to increase its capacity overall via increased productivity. To this end, the ISE is well advanced in the development of its automatic execution service, SAEF (SEAQ Automated Execution Facility), which is expected to be in operation by next year. SAEF will enable customer orders of up to 1,000 shares in SEAQ stocks, placed with member firms of the ISE, to be executed at a touch of a button. Since over half the transactions on the ISE are for 1,000 or less shares, the implementation of SAEF will considerably release resources within firms to handle a much greater proportion of higher value transactions.

To conclude, there can be no doubt that what we have now is, not a group of separate markets with occasional overlapping but — since the links between markets are so strong — one, very complex market. This one market encompasses not only different assets within the UK but also covers international markets. This underlines the need to understand clearly the impact of changes — regulatory, procedural, technical and structural — in one area of the market on other areas. For example, while SAEF is seen mainly as an enhancement to the cash market, it may ultimately simplify arbitrage between interconnected markets and thus will have an impact on derivative markets. The results of our study, and studies from other exchanges and regulatory authorities, demonstrate that there is a long way to go before we fully understand and accept the implications of this single market phenomenon.

TABLE A1

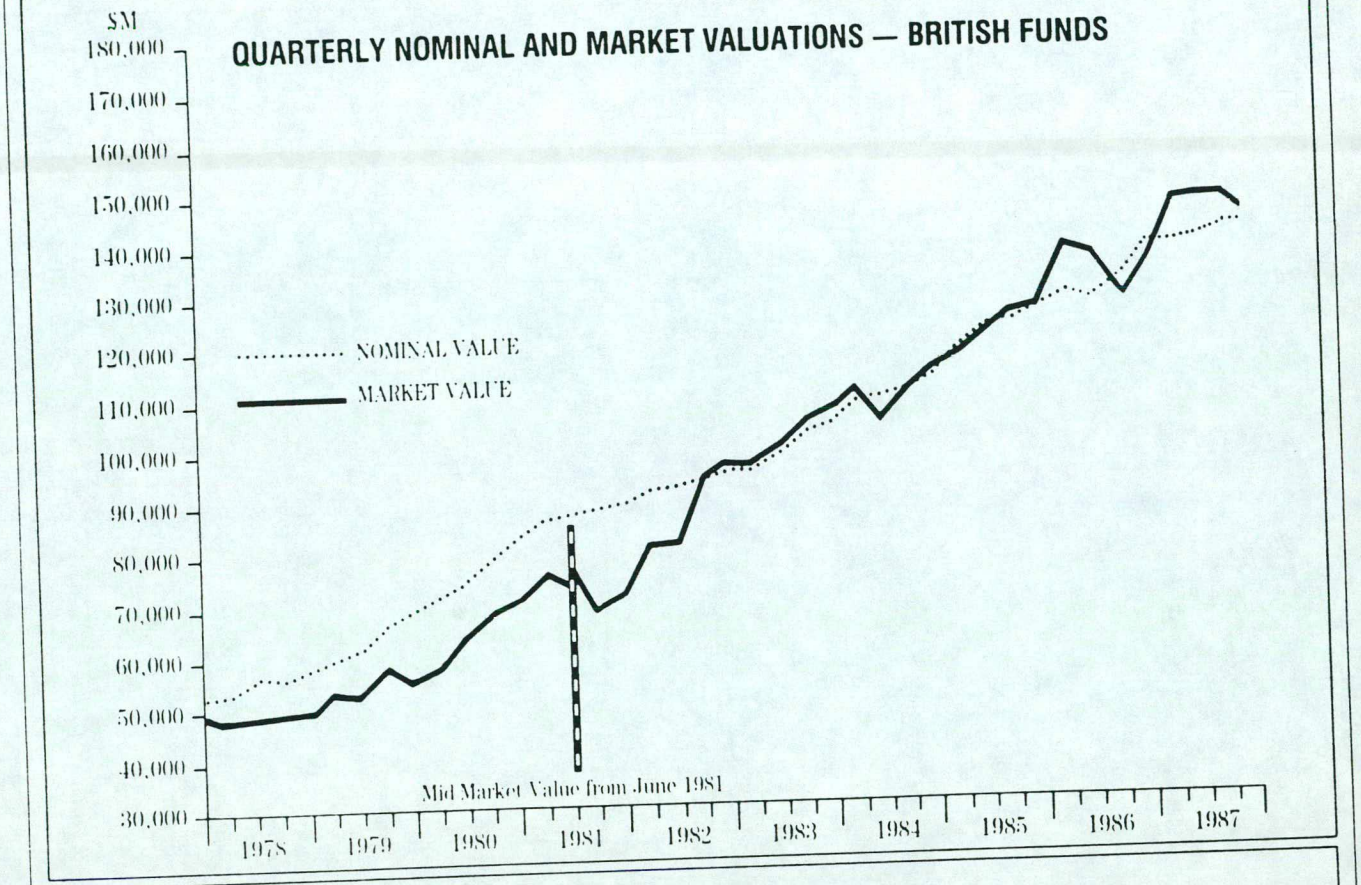
Nominal and Market Value of all Securities at 31st December 1987

	No. of Companies*	No. of Securities	Nominal Value £m	Market Value £m
Public Sector: UK & Ireland				
Short (0-7)		45	52,375.1	52,616.8
Medium (7-15)		35	46,816.5	48,261.6
Others (over 15)		32	29,772.6	29,094.5
Index-Linked		14	12,251.7	12,727.3
SUB TOTAL BRITISH FUNDS ETC.		126	141,215.9	142,700.2
Short (0-7)		41	6,341.2	6,039.8
Medium (7-15)		17	2,790.4	2,671.3
Others (over 15)		34	2,316.8	2,056.8
SUB TOTAL IRISH GOVERNMENT		92	11,448.4	10,767.9
CORPORATION AND COUNTY STOCKS — GREAT BRITAIN & NORTHERN IRELAND		119	562.2	539.6
PUBLIC BOARDS ETC. — GREAT BRITAIN & NORTHERN IRELAND		68	140.4	103.7
Public Sector: Overseas				
COMMONWEALTH & PROVINCIAL SECURITIES		12	8.9	6.3
COMMONWEALTH CORP STOCKS		2	1.6	1.5
FOREIGN STOCKS BONDS ETC.		114	3,494.4	3,697.2
CORPORATION STOCKS: FOREIGN		13	1.4	0.7
SUB TOTAL PUBLIC SECTOR		**546**	**156,873.2**	**157,817.1**
Eurobonds				
UK COMPANIES		208	17,092.2	17,905.9
IRISH COMPANIES		4	192.9	190.2
OVERSEAS COMPANIES		878	62,417.8	69,745.4
SUB TOTAL EUROBONDS		**1,090**	**79,702.9**	**87,841.5**
Company Securities				
LOAN CAPITAL				
UK		1,168	10,301.4	11,059.1
Irish		13	35.5	34.1
Overseas		19	379.8	449.3
SUB TOTAL		1,200	10,716.7	11,542.5
PREFERENCE CAPITAL				
UK		1,189	3,658.8	11,719.0
Irish		5	11.0	6.4
Overseas		140	163.4	13,942.9
SUB TOTAL		1,334	3,833.2	25,668.3
ORDINARY & DEFERRED				
UK	2,061	1,911	38,758.9	363,169.9
Irish	74	53	486.5	3,267.4
Overseas	523	613	37,635.3	709,835.5
SUB TOTAL	2,658	2,577	76,880.7	1,076,272.8
SUB TOTAL COMPANY SECURITIES	**2,658**	**5,111**	**91,430.6**	**1,113,483.6**
TOTAL LISTED SECURITIES		**6,747**	**328,006.7**	**1,359,142.2**
UNLISTED SECURITIES MARKET	369	375	822.2	6,282.7
THIRD MARKET	35	37	41.8	239.7

*All companies with capital listed.

Nominal and Market Values of British Funds and UK Equity Value at 31st December 1987

TABLE
A2



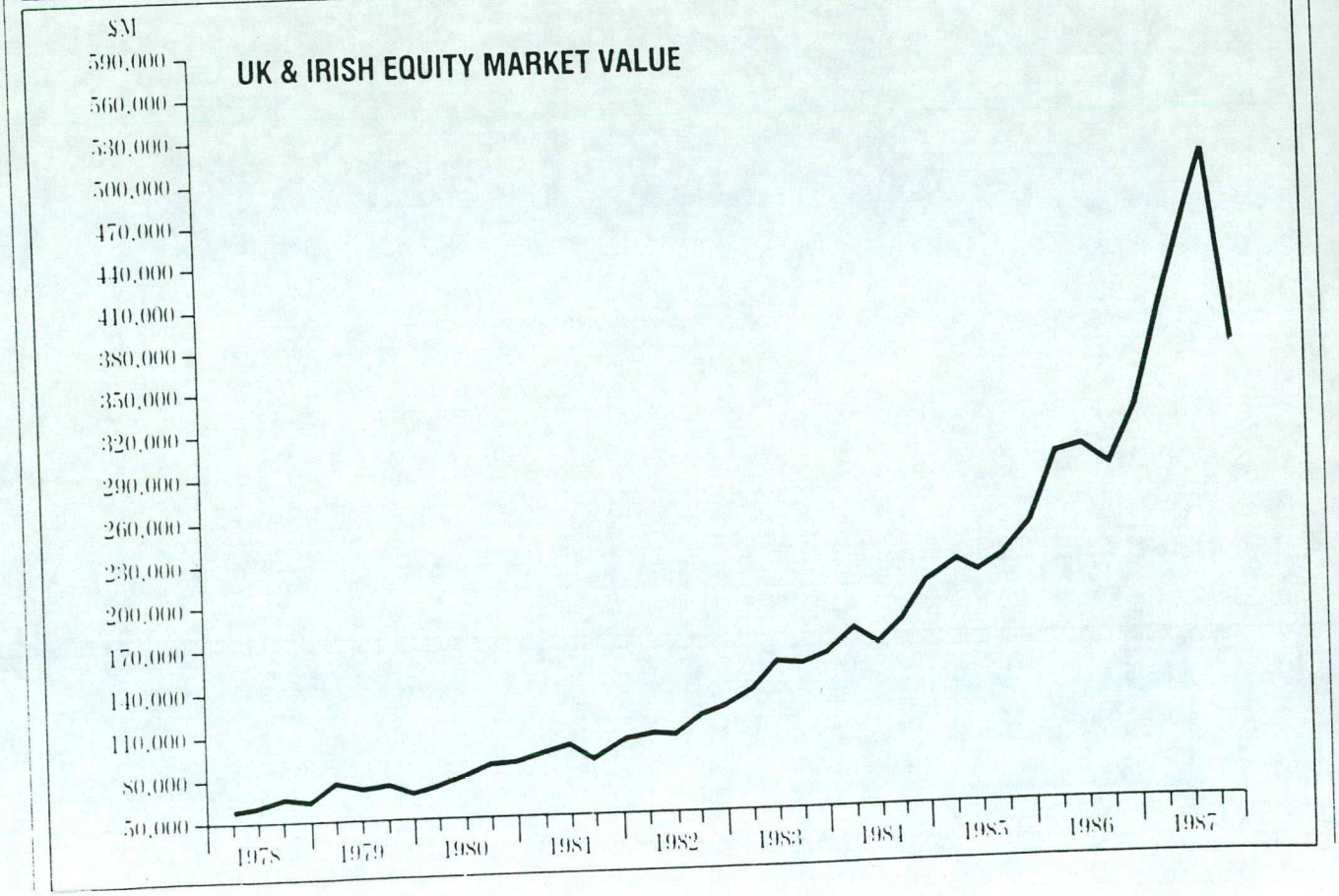


TABLE
A3

Classification of Market Values for quarter by International Stock Exchange Securities Group at 31st December 1987

	SE Group	Listed UK & Irish £m	Listed Overseas £m	Total Listed £m	USM £m	Third Market £m
Fixed Interest						
British Funds	1	142,700.2	—	142,700.2	—	—
Corporation and County Stocks	2	539.6	—	539.6	—	—
Public Boards	3	103.7	—	103.7	—	—
Commonwealth Government Etc	4	—	7,073.8	7,073.8	—	—
Foreign Bonds	5	10,767.9	76,930.5	87,698.4		
Fixed Interest Stocks excluding Preference and any stock with an equity element	6	7,985.8	1,088.4	9,074.2	—	—
Preference	7	1,395.5	135.8	1,531.3	0.3	—
Convertibles	8	10,017.6	3,184.4	13,202.0	155.9	3.6
Waterworks	9	62.9	—	62.9	—	—
TOTAL FIXED INTEREST		**173,573.2**	**88,412.9**	**261,986.1**	**156.2**	**3.6**
Equities						
Other Industrial Materials and Capital Goods	11	10,086.4	1,590.8	11,677.2	—	—
Bricks and Roofing Tiles	12	1,430.2	—	1,430.2	—	—
Builders Merchants	13	1,254.0	365.2	1,619.2	18.2	—
Building Materials	14	6,613.6	188.0	6,801.6	36.1	—
Cement and Concrete	15	2,684.0	1,576.1	4,260.1	—	—
Paint	16	97.4	—	97.4	23.7	—
Timber	17	695.5	—	695.5	—	—
Contracting and Construction	18	6,383.8	272.4	6,656.2	252.8	—
Electricals	19	3,154.2	65,344.9	68,499.1	101.0	—
Cold Formed Fastenings and Turned Parts	20	47.1	—	47.1	37.1	—
Founders and Stampers	21	177.5	—	177.5	7.9	—
Industrial Plant, Engines and Compressors	22	719.4	3,804.5	4,523.9	16.6	—
Mechanical Handling	23	305.1	1,389.0	1,694.1	10.6	—
Pumps and Valves	24	324.3	—	324.3	—	—
Steel and Chemical Plant	25	278.7	598.6	877.3	—	—
Wire and Ropes	26	116.9	—	116.9	6.5	—
Miscellaneous Mechanical Engineering	27	8,461.8	15,541.7	24,003.5	57.4	—
Machine and Other Tools	28	270.9	2,944.4	3,215.3	40.7	—
Miscellaneous Engineering Contractors	29	362.2	142.7	504.9	14.6	1.9
Instruments	31	234.0	211.0	445.0	16.7	—
Metallurgy	32	1,432.7	3,933.7	5,366.4	—	—
Special Steels	33	194.7	441.5	636.2	17.4	—
Miscellaneous Metal Forming	34	560.2	—	560.2	6.5	—
Electronics	35	13,482.9	50,220.6	63,703.5	597.3	2.4
Radio and T.V.	36	2,710.4	—	2,710.4	7.9	—
Floor Covering	37	251.4	—	251.4	7.4	—
Furniture and Furnishings	38	360.8	—	360.8	40.7	6.0
Household Appliances	39	269.0	2,271.9	2,540.9	—	—
Kitchen and Tableware	40	288.7	—	288.7	4.4	—
Motor Components	41	2,255.5	3,110.8	5,366.3	17.5	—
Motor Distributors	42	1,174.2	9.6	1,183.8	70.8	21.9
Motor Vehicles	43	1,713.6	31,078.1	32,791.7	16.9	—
Security and Alarm Services	44	721.8	57.4	779.2	14.2	—
Breweries	45	12,935.3	7,634.2	20,569.5	124.6	—
Wine and Spirits	46	2,732.7	4,008.1	6,740.8	—	—
Hotel and Caterers	47	3,668.3	473.9	4,142.2	36.3	—
Leisure	48	4,376.4	851.0	5,227.4	422.3	49.3
Food Manufacturers	49	16,182.2	22,931.7	39,113.9	419.4	5.2
Food Retailers	51	13,379.7	666.6	14,046.3	17.4	—
Newspapers and Periodicals	52	4,906.1	5,526.5	10,432.6	33.5	—
Publishing and Printing	53	3,241.1	100.8	3,341.9	106.1	4.3
Packaging and Paper	54	4,177.2	2,668.0	6,845.2	39.0	4.9
Departmental Stores	55	235.5	1,921.2	2,156.7	7.6	—
Furnishing Stores	56	382.0	—	382.0	13.8	6.6
Stores, Mail Order	57	867.1	7,423.1	8,290.2	2.8	—

Classification of Market Values for quarter by International Stock Exchange Securities Group at 31st December 1987

TABLE **A3** cont.

	SE Group	Listed UK & Irish £m	Listed Overseas £m	Total Listed £m	USM £m	Third Market £m
Equities cont.						
Stores, Multiple	58	20,661.9	896.6	21,558.5	356.3	2.3
Clothing	59	888.7	578.5	1,467.2	179.5	4.8
Cotton and Synthetic	60	1,284.7	3,316.4	4,601.1	—	—
Wool	61	643.2	—	643.2	—	—
Miscellaneous Textiles	62	2,011.4	—	2,011.4	9.8	—
Tobacco	63	7,783.0	1,403.1	9,186.1	—	—
Leather	64	647.0	—	647.0	25.6	—
Giftware	65	67.5	408.6	476.1	31.1	—
Plastic and Rubber	66	369.7	198.3	568.0	29.8	—
Health and Household Products	67	18,063.5	30,785.7	48,849.2	23.9	24.9
General Chemicals	68	12,284.3	38,809.0	51,093.3	10.4	1.2
Office Equipment	69	717.3	2,755.9	3,473.2	77.4	7.4
Oil and Gas	70	40,550.1	100,937.6	141,487.7	244.7	37.9
General Traders, Wholesalers & Distributors	71	254.9	18.4	273.3	85.5	—
Transport and Freight	72	6,738.9	7,838.1	14,577.0	73.7	5.1
Industrial Conglomerate	73	11,437.3	17,866.6	29,303.9	—	—
Laundries and Cleaners	74	372.1	—	372.1	—	—
Consultancies & Agencies	75	5,982.5	4,626.1	10,608.6	422.7	15.2
Miscellaneous	76	943.1	13,535.3	14,478.4	821.8	21.7
Banks	77	15,268.8	—	15,268.8	—	—
Foreign Banks	78	1,389.3	75,502.3	76,891.6	20.7	—
Discount	79	307.0	—	307.0	—	—
Hire Purchase	80	898.3	226.9	1,125.2	—	—
Insurance (Life)	81	7,508.2	3,486.6	10,994.8	82.6	—
Insurance (Composite)	82	8,036.1	14,785.1	22,821.2	—	—
Insurance (Brokers)	83	2,283.6	2,348.0	4,631.6	63.9	3.9
Investment Trusts	84	13,931.0	—	13,931.0	—	—
Merchant Banks and Issuing Houses	85	3,578.1	—	3,578.1	—	—
Property	86	13,083.8	1,210.6	14,294.4	709.9	—
Miscellaneous Financial	87	14,480.9	34,150.6	48,631.5	136.4	—
Utilities	88	16,700.4	78,246.4	94,946.8	—	—
Rubbers	89	130.5	985.0	1,115.5	—	—
Teas	90	178.7	0.8	179.5	—	—
Coppers	91	—	519.0	519.0	—	3.9
Mining Finance	92	4,811.5	10,879.2	15,690.7	—	—
Tin	93	15.5	171.6	187.1	10.4	—
Diamond	94	—	2,367.2	2,367.2	—	—
Gold	95	64.4	12,264.3	12,328.7	4.7	4.0
Miscellaneous Mines and Collieries	96	69.0	6,945.6	7,014.6	42.0	1.3
Overseas Trade	97	3,057.3	128.8	3,186.1	—	—
Electric Utilities	98	—	15,975.9	15,975.9	—	—
TOTAL EQUITIES		**373,690.0**	**723,466.1**	**1,097,156.1**	**6,126.5**	**236.1**
GRAND TOTAL		**547,263.2**	**811,879.0**	**1,359,142.2**	**6,282.7**	**239.7**

NOTE: Overseas companies, formally in groups 98 and 99 are now included in their respective groups.

TABLE
A3
cont.

Market Value of UK & Irish Listed Equities by International Stock Exchange Securities Group

SE Group		Dec 1987 Market Value £m	Dec 1986 Market Value £m
12-17	Building Materials	12,774.7	10,377.7
18	Contracting & Construction	6,383.8	5,060.9
19	Electricals	3,154.2	1,878.9
35	Electronics	13,482.9	13,541.0
20, 22-29	Mechanical engineering	10,886.4	9,365.0
21, 32-34	Metals & metal forming	2,365.1	1,757.6
41-43	Motors	5,143.3	4,622.9
11, 31	Other industrial materials	10,320.4	8,705.2
	CAPITAL GOODS TOTAL	**64,510.8**	**55,309.2**
45, 46	Beers, Wines & Spirits	15,668.0	14,362.6
49	Food Manufacturers	16,182.2	14,184.3
51	Food Retailers	13,379.7	10,670.6
67	Health & household products	18,063.5	17,431.7
36,47,48	Leisure	10,755.1	7,575.5
52, 53	Publishing & Printing	8,147.2	6,466.2
54	Packaging & Paper	4,177.2	3,730.1
55-58	Stores	22,146.5	21,672.3
37, 59-62	Textiles	5,079.4	4,430.2
	CONSUMER GROUP TOTAL	**113,598.8**	**100,523.5**
75	Agencies	5,982.5	4,789.0
66, 68	Chemicals	12,654.0	11,488.1
73	Conglomerates	11,312.7	9,406.7
72	Shipping & Transport	6,738.9	4,401.6
88, 98	Telephone Networks	16,700.4	16,280.1
38-40, 44, 63-65, 69, 71, 74, 76	Miscellaneous	12,549.8	13,206.2
	OTHER GROUPS TOTAL	**65,938.3**	**59,571.7**
	TOTAL COMMERCIAL & INDUSTRIAL	**244,047.9**	**215,404.4**
70	**OILS & GAS**	**40,550.1**	**34,666.0**
77, 78, 85	Banks, Discount & Merchant Banks	20,236.2	19,842.1
81-83	Insurance	17,827.9	16,674.9
86	Property	13,083.8	9,440.6
79, 80, 87	Other financial	15,683.0	5,469.0
	FINANCIAL GROUP TOTAL	**66,830.9**	**51,426.6**
84	**INVESTMENT TRUSTS**	**13,934.2**	**16,212.9**
91-96	**MINING FINANCE**	**4,960.4**	**3,623.4**
89, 90, 97	**OVERSEAS TRADERS**	**3,366.5**	**2,708.7**
	GRAND TOTAL ORDINARY SHARES	**373,690.0**	**324,042.0**

Market Values of Listed Equities by Country of Origin at 31st December 1987

TABLE A4

	No. of Companies	No. of New Entrants	Market Value £m	% Alteration on previous Quarter	1986 Equity Value of Domestic Exchange £m
AUSTRALIA	20	2	15,833.2	−34.7	63,652
BAHAMAS	1	—	57.6	−37.5	n/a
BELGIUM	2	—	2,295.9	−6.9	25,146
BERMUDA	19	1	3,520.6	−30.4	n/a
BRAZIL	2	—	28.6	−32.2	n/a
CANADA	26	—	25,937.3	−28.5	124,495
CAYMAN ISLANDS	17	—	13,094.6	+5.6	n/a
DENMARK	5	—	1,272.7	−21.7	11,744
FINLAND	4	—	230.3	−31.1	7,965
FRANCE	5	—	6,661.2	−23.1	116,667
GERMANY	8	—	25,529.2	−32.2	178,791
HONG KONG	2	—	2,375.4	−41.8	36,270
INDIA	2	—	8.4	—	n/a
ISRAEL	3	—	389.6	+3.4	6,693
ITALY	1	—	1,379.5	−48.8	95,859
JAPAN	9	—	71,285.9	−12.6	1,189,861
KENYA	1	—	0.8	—	n/a
LIBERIA	1	—	163.8	−42.5	n/a
LUXEMBOURG	12	—	3,287.0	−29.3	17,612
MALAYSIA	14	—	1,793.8	−39.3	10,145
NETHERLAND ANTILLES	2	—	4,850.1	−45.5	n/a
NETHERLANDS	13	—	34,652.1	−27.7	56,721
NEW ZEALAND	3	—	2,407.8	−48.6	15,406
NORWAY	3	—	1,293.2	−54.1	6,889
PANAMA	5	—	1,144.3	−16.7	n/a
SINGAPORE	1	—	142.7	−59.1	27,066
SOUTH AFRICA	96	2	25,616.6	−32.7	76,254
SPAIN*	4	—	10,077.7	−20.1	31,544
SWEDEN	15	—	5,805.3	−33.7	46,365
SWITZERLAND**	1	—	—	—	87,664
TAIWAN	3	—	237.1	−13.4	n/a
THAILAND	1	—	33.4	−13.7	n/a
TURKEY	1	—	105.0	−42.5	n/a
USA***	195	3	461,905.2	−34.5	1,720,786
WEST INDIES	1	—	—	—	n/a
ZAMBIA	2	—	34.7	−5.7	n/a
ZIMBABWE	5	—	15.5	−9.9	n/a
TOTALS	505	8	723,466.1	−31.5	—

*Madrid Exchange only.

** Zurich Exchange only.

***American, NASDAQ & New York Exchanges.

TABLE A5 — Overseas Equities listed on the International Stock Exchange as at 31st December 1987

Date Admitted	SE Group	
		AUSTRALIA (20)
3.10.77	78	Australia & New Zealand Banking Group
26.5.48	97	Australian Agricultural Co.
20.7.87	95	BHP Gold Mines
28.7.86	66	BTR Nylex
26.11.52	92	Broken Hill Proprietary Co.
5.2.87	58	Coles Myer
27.8.62	97	Elders IXL
26.10.83	82	FAI Insurances
17.12.87	49	Goodman Fielder Wattie
20.3.64	19	Hanimex Corp'n
26.11.87	72	Mayne Nickless
21.2.64	78	National Australia Bank
12.11.86	52	News Corp'n
23.6.72	96	North Kalgurli Mines
2.1.87	11	Pacific Dunlop
1.12.86	92	TMOC Resources
23.10.80	72	TNT
10.11.60	97	Van Diemen's Land Co.
20.11.79	96	Western Mining Corp'n Holdings
19.10.53	78	Westpac Banking Corp'n
		BAHAMAS (1)
21.5.70	87	Delta Investment Co.
		BELGIUM (2)
18.12.64	88	E.B.E.S.
6.5.65	88	Intercom Belge
		BERMUDA (19)
18.6.82	87	Anchor International Fund
20.8.82	87	Bermuda International Bond Fund
11.4.84	87	Fledgeling Japan Inv. Co.
25.8.82	87	Forexfund
8.4.83	87	G.T. Dollar Fund
26.3.76	87	GT Berry Japan Fund
23.3.87	87	Group One
21.12.84	73	Hawley Group
30.11.87	92	Minorco SA
15.7.87	95	Monarch Resources
10.12.81	87	Newmarket Co.
2.11.83	87	Pinechurch United States Growth Fund
30.5.84	87	Quadrant Intercontinental Fund
1.8.84	87	Save & Prosper Gold Fund
19.3.84	73	Sea Containers
28.9.84	87	Thornton Japan Fund
9.12.85	87	Thornton Oriental Income Fund
13.7.79	70	Weeks Petroleum
29.6.71	91	Zambia Copper Investments
		BRAZIL (2)
6.2.76	87	Brasilvest S.A.
2.12.75	87	Brazil Fund S.A.
		CANADA (26)
4.8.53	32	Alcan Aluminium
31.10.86	96	Anglo United
7.7.82	70	Atlantis International
14.4.81	86	BCE Development Corp'n
30.8.44	78	Bank of Montreal
30.8.44	78	Bank of Nova Scotia
3.5.83	88	Bell Canada Enterprises Inc.
25.6.51	87	Canadian & Foreign Securities Co.
31.5.61	78	Canadian Imperial Bank of Commerce
11.5.62	54	Canadian Overseas Packaging Inds.
24.9.52	72	Canadian Pacific
4.6.80	70	Dome Petroleum
14.12.84	87	GBC Capital
23.7.87	95	Granges Exploration
13.2.87	95	Hemlo Gold Mines
11.9.57	96	Inco
20.9.78	52	International Thomson Organisation
9.7.84	95	Malartic Hygrade Gold Mines (Canada)
19.9.80	35	Mitel Corp'n
4.6.84	88	Northern Telecom
10.12.66	96	Northgate Exploration
7.7.72	70	Ranger Oil
30.8.44	78	Royal Bank of Canada
19.10.73	46	Seagram Co.
7.3.55	78	Toronto-Dominion Bank
7.5.51	28	Varity Corp'n
		CAYMAN ISLANDS (17)
29.12.86	87	Bangkok Invs.
17.11.82	87	Grindlay Vanguard Int. Currency Fund
25.3.83	87	IBI Global Funds
30.11.83	87	Lazard Brothers Int. Income Fund
9.9.83	87	Lazard Capital Growth Bond Fund
27.7.83	87	Lazard Diversified Bond Fund
2.3.84	87	Lazard Japan Fund
23.2.83	87	Liquibaer Julius Baer U.S. $ Fund
24.6.83	87	Mezzanine Capital Corp'n
27.4.84	87	Old Court Currency Fund
30.4.85	87	PFC International Portfolio Fund
2.11.84	87	RBC Canadian Fund
9.3.84	87	RBC Far East & Pacific Fund
27.5.83	87	RBC International Currencies Fund
9.11.84	87	Schroder Portfolio Selection Fund
8.5.86	87	Scimitar Worldwide Selection Fund
27.2.86	87	Templeton Galbraith & Hansberger
		DENMARK (5)
15.10.73	78	Copenhagen Handelsbanken A/S
27.8.65	88	GN Great Nordic Hldg.
15.7.65	97	GN Great Nordic
25.6.87	82	Hafnia Invest A/S
20.10.78	67	Novo Industri A/S
		FINLAND (4)
29.5.84	73	Amer Group
18.5.87	11	Nokia Corp'n
26.4.84	11	OY Wartsila A/B
20.6.85	76	Rauma-Repola OY
		FRANCE (5)
1.7.85	49	BSN
25.5.73	87	Compagnie Bancaire S.A.
2.7.87	73	Compagnie de Saint-Gobain
30.10.72	73	Lafarge-Coppee
26.9.73	70	Total-Compagnie Francaise Des Petroles

TABLE A5 cont.

Overseas Equities listed on the International Stock Exchange as at 31st December 1987

Date Admitted	SE Group	
		UNITED STATES OF AMERICA cont'd
19.7.73	35	International Business Machines Corp'n
13.5.83	86	International Income Property Inc.
18.2.74	28	International Systems & Control Corp'n
6.12.82	70	Jackson Exploration Inc.
23.1.86	54	Klearfold Inc.
8.1.81	49	Kraft Inc.
19.12.85	35	Lexicon Inc.
20.12.84	76	Limited Inc. (The)
4.12.84	81	Lincoln National Corp'n
23.5.80	65	Lionel Corp'n
30.6.86	27	Lockheed Corp'n
7.11.80	15	Lone Star Industries Inc.
20.9.79	70	Louisiana Land & Exploration Co.
7.10.81	13	Lowe's Companies Inc.
13.12.84	78	MCorp
20.3.73	78	Manufacturers Hanover Corp'n
6.6.80	83	Marsh & McLennan Co. Inc.
24.12.84	76	Martin Marietta Corp'n
7.4.72	87	Merrill Lynch & Co. Inc.
5.6.81	87	Mexico Fund Inc.
17.1.77	70	Mobil Corp'n
7.5.87	35	Molex Inc.
21.1.70	68	Monsanto Co.
7.6.73	78	Morgan (J.P.) & Co. Inc.
13.9.78	19	Motorola Inc.
20.11.69	35	NCR Corp'n
15.2.84	88	NYNEX Corp'n
18.11.80	76	National Medical Enterprises Inc.
8.5.80	70	Nicor Inc.
27.7.87	70	Occidental Petroleum Corp'n
5.5.67	75	Ogilvy Group Inc.
15.9.80	73	Orient Express Hotels Inc.
5.12.84	76	PHH Group Inc.
30.6.83	88	Pacific Gas & Electric Co.
15.2.84	88	Pacific Telesis Group
13.5.86	88	Pacificorp
17.12.84	76	Pall Corp'n
15.9.80	70	Pennzoil Co.
26.8.67	67	Pfizer Inc.
22.11.83	49	Pillsbury Co.
1.10.87	76	Premark International
18.6.87	76	Primerica Corp'n
20.12.84	31	Process Systems Inc.
1.5.86	88	Public Service Enterprise Group
24.5.73	49	Quaker Oats Co.
18.12.84	49	RJR Nabisco Inc.
3.7.74	78	Republic New York Corp'n
18.6.79	27	Rockwell International Corp'n
3.11.83	27	Rohr Industries Inc.
15.5.81	51	Sara Lee Corp'n
11.10.73	86	Saul (B.F.) Real Estate Inv. Tst.
27.11.84	54	Scott Paper Co.
5.10.78	57	Sears Roebuck & Co.
28.6.79	78	Security Pacific Corp'n
22.6.73	39	Singer Co.
25.9.86	67	Smithkline Beckman Corp'n
19.6.81	88	Southern California Edison Co.
15.2.84	88	Southwestern Bell Corp'n
12.10.72	67	Squibb Corp'n
13.4.84	76	Stevens (J.P.) & Co. Inc.
17.7.73	27	TRW Inc.
10.12.87	70	Tenneco Inc.
26.3.69	70	Texaco Inc.
4.5.78	70	Texas Eastern Corp'n
15.2.77	52	Time Inc.
17.10.84	81	Torchmark Corp'n
23.10.84	35	Tracor Inc.
19.4.73	73	Transamerica Corp'n
13.12.84	47	Transworld Corp'n
11.12.73	82	Travelers Corp'n (The)
3.11.86	22	Trinova Corp'n
5.10.87	96	UNC Inc.
15.2.84	88	US WEST Inc.
9.7.87	82	USF&G Corp'n
1.5.86	81	USLIFE Corp'n
17.6.80	68	Union Carbide Corp'n
29.1.70	35	Unisys Corp'n
2.11.76	27	United Technologies Corp'n
12.5.77	48	Warner Communications Inc.
8.11.73	67	Warner-Lambert Co.
4.6.87	76	Waste Management Inc.
29.6.87	78	Wells Fargo & Co.
18.5.87	39	Whirlpool Corp'n
2.10.72	69	Xerox Corp'n
29.3.77	76	Xonics Inc.
30.5.74	70	Zapata Corp'n
		WEST INDIES (1)
9.7.48	97	JSE
		ZAMBIA (2)
1.4.68	96	Botswana RST
29.6.70	91	Zambia Consolidated Copper Mines
		ZIMBABWE (5)
6.6.46	95	Falcon Mines
1.1.58	91	Mhangura Copper Mines
24.11.43	92	Northchart Investments
24.5.52	97	Portland Holdings
27.4.50	96	Wankie Colliery Co.

Overseas Equities listed on the International Stock Exchange as at 31st December 1987

TABLE A5 cont.

Date Admitted	SE Group	
		GERMANY (8)
2.10.81	82	Allianz AG Hldg.
14.5.80	68	B.A.S.F. A.G.
7.3.61	68	Bayer A.G.
22.1.62	78	Commerzbank A.G.
16.7.76	78	Deutsche Bank A.G.
20.11.61	68	Hoechst A.G.
14.5.86	68	Schering A.G.
15.7.60	33	Thyssen A.G.
		HONG KONG (2)
12.11.85	87	China & Eastern Investment Co.
14.3.55	78	Hong Kong & Shanghai Banking Corp'n
		INDIA (2)
9.4.79	97	Calcutta Electric Supply Corp'n
21.6.76	97	E.I.D.-Parry (India)
		ISRAEL (3)
14.3.77	78	Bank Leumi Le-Israel B.M.
21.2.57	68	Dead Sea Works
27.2.50	19	Israel Electric Corp'n
		ITALY (1)
9.7.87	68	Montedison S.P.A.
		JAPAN (9)
21.9.87	78	Fuji Bank
1.10.81	19	Fujitsu
18.6.81	43	Honda Motor Co.
7.9.81	19	NEC Corp'n
22.7.76	59	Renown Inc.
1.10.71	19	Sony Corp'n
27.5.83	19	TDK Corp'n
11.6.64	60	Toray Industries Inc.
9.10.80	19	Toshiba Corp'n
		KENYA (1)
12.2.53	90	Kakuzi
		LIBERIA (1)
25.7.80	72	Gotaas-Larsen Shipping Corp'n
		LUXEMBOURG (12)
4.10.82	96	Afex Corp'n
15.6.87	87	CMI Portfolio Inv. Co
12.5.68	87	G.T. Investment Fund
24.7.86	87	JF Pacific Warrant Co. S.A.
24.11.86	87	Mercury Offshore Sterling Tst.
8.11.72	87	Mercury Selected Trust
10.8.87	87	Multi-Currency Bond Portfolio
26.5.82	67	Oriflame International S.A.
3.10.72	78	Republic Holdings S.A.
5.4.83	87	SCI TECH S.A.
27.3.87	87	Thornton Pacific Inv. Fund
28.7.76	87	Tolux S.A.
		MALAYSIA (14)
21.12.79	89	Consolidated Plantations Bhd.
31.3.78	89	Gadek (Malaysia) Bhd
13.4.84	93	Gopeng Berhad
1.10.82	89	Harrisons Malaysian Plantations Bhd.
2.1.76	89	Highlands & Lowlands Bhd.
10.11.60	93	Kinta Kellas Investments
1.10.73	89	Kuala Lumpur Kepong Bhd.
2.1.76	89	Malakoff Bhd.
12.10.81	96	Malaysia Mining Corp'n Bhd.
11.12.50	93	Petaling Tin Bhd.
9.9.57	89	Riverview Rubber Estates Bhd.
21.12.79	73	Sime Darby Bhd.
2.11.76	93	Sungei Besi Mines Malaysia Bhd.
2.11.76	93	Tronoh Mines Malaysia Bhd.
		NETHERLAND ANTILLES (2)
29.4.63	70	Schlumberger
9.11.84	87	Transcontinental Services Group N.V.
		NETHERLANDS (13)
23.6.75	82	Aegon N.V.
6.10.72	68	Akzo N.V.
28.6.73	78	Algemene Bank Nederland N.V.
20.3.51	87	English & Dutch Investment Trust
12.10.83	87	European Assets Trust N.V.
17.12.73	73	Phillip's Lamps Holdings N.V.
27.3.62	87	Robeco N.V.
26.11.66	87	Rolinco N.V.
24.9.82	87	Rorento N.V.
31.10.46	70	Royal Dutch Petroleum Co. N.V.
12.1.49	49	Unilever N.V.
14.12.79	86	Wereldhave N.V.
7.11.84	49	Wessanen (Koninklijke) N.V.
		NEW ZEALAND (3)
11.12.86	73	Brierley Invs.
20.3.81	73	Fletcher Challenge
22.10.84	82	NZI Corp'n
		NORWAY (3)
3.6.85	11	Elkem A/S
3.7.81	35	Norsk Data A/S
13.4.72	70	Norsk Hydro A/S
		PANAMA (5)
2.6.87	87	Energy & Resources International
25.5.84	87	GAM Pacific Inc.
28.10.83	87	GAM World Wide Inc.
28.10.83	87	GAMerica Inc.
7.10.81	87	Minerals Oils & Resources Shares Fund
		SINGAPORE (1)
16.6.82	29	Keppel Corp'n
		SOUTH AFRICA (96)
30.12.71	27	Abercom Group
21.10.49	96	Anglo American Coal Corp'n
27.9.45	92	Anglo American Corp'n of South Africa
24.5.39	95	Anglo American Gold Investment Co.

TABLE A5 cont.

Overseas Equities listed on the International Stock Exchange as at 31st December 1987

Date Admitted	SE Group	
		SOUTH AFRICA cont'd
1.10.72	73	Anglo American Industrial Corp'n
16.9.36	94	Anglo American Investment Trust
17.1.46	92	Anglovaal
7.3.69	27	Barlow Rand
14.3.85	96	Beatrix Mines
5.7.37	95	Blyvooruitzicht Gold Mining Co.
23.8.50	95	Bracken Mines
22.10.54	95	Buffelsfontein Gold Mining Co.
15.8.83	53	CNA Gallo
9.6.54	94	Consolidated Co. Bultfontein Mine
13.9.51	96	Consolidated Murchison
22.12.44	95	Coronation Syndicate
27.1.86	87	DAB Investments
15.10.52	94	De Beers Consolidated Mines
25.4.75	95	Deelkraal Gold Mining Co.
23.4.47	95	Doornfontein Gold Mining Co.
1.6.69	95	Driefontein Consolidated
19.7.50	95	Durban Roodepoort Deep
8.5.40	95	East Daggafontein Mines
4.12.77	92	East Rand Gold & Uranium Co.
17.7.50	95	East Rand Proprietary Mines
22.9.50	95	Eastern Transvaal Consolidated Mines
28.9.84	95	Egoli Consolidated Mines
8.10.75	95	Elandsrand Gold Mining Co.
16.2.66	95	Elsburg Gold Mining Co.
17.2.71	87	First Union General Investment Trust
7.5.48	95	Free State Consolidated Gold Mines
15.2.46	92	Free State Development & Inv. Co.
17.4.64	92	Genbel Investments
12.9.58	92	General Mining Union Corp'n
23.3.44	96	Gold Fields Coal
16.8.50	95	Gold Fields Property Co.
29.11.45	92	Gold Fields of South Africa
19.2.48	55	Gresham Industries
1.9.72	96	Griqualand Exploration & Finance Co.
9.6.54	94	Griqualand West Diamond Mining Co.
15.10.41	95	Grootvlei Proprietary Mines
6.12.50	95	Harmony Gold Mining Co.
26.2.50	95	Hartebeestfontein Gold Mining Co.
22.2.73	96	Impala Platinum Holdings
18.11.42	49	Imperial Cold Storage & Supply Co.
30.6.86	95	Joel (H.J.) Gold Mining Co.
20.10.50	92	Johannesburg Consolidated Investments
1.8.64	95	Kinross Mines
1.7.64	95	Kloof Gold Mining Co.
19.10.87	96	Lebowa Platinum Mines
10.12.87	96	Lefkochrysos
9.11.59	95	Leslie Gold Mines
17.7.39	95	Libanon Gold Mining Co.
27.4.81	81	Liberty Life Association of Africa
9.3.51	95	Loraine Gold Mines
9.7.51	96	Lydenburg Platinum
23.8.50	95	Marievale Consolidated Mines
24.5.46	92	Middle Witwatersrand (Western Areas)
23.8.50	92	New Central Witwatersrand Areas
13.9.50	92	New Kleinfontein Properties
12.4.56	92	New Wits
4.2.42	58	O.K. Bazaars (1929)
24.2.86	95	Orange Free State Investments
20.7.84	73	Premier Group Hldgs.
6.9.50	92	Rand London Corp'n
19.7.50	92	Rand Mines
16.5.69	92	Rand Mines Properties
29.9.50	95	Randfontein Estates Gold Mining Co.
23.2.56	96	Rustenburg Platinum Holdings
25.9.46	73	Saker's Finance & Investment Corp'n
16.8.50	95	Simmer & Jack Mines
26.5.71	45	South African Breweries
23.8.50	95	South African Land & Exploration Co.
19.5.68	95	Southvaal Holdings
22.5.46	95	St. Helena Gold Mines
12.9.49	95	Stilfontein Gold Mining Co.
1.5.47	50	Tiger Oats
15.2.50	72	Tollgate Holdings
1.11.39	49	Tongaat-Hulett Group
19.4.63	96	Trans-Natal Coal Corp'n
19.5.58	96	Tweefontein United Collieries
23.6.47	25	Union Steel Corp'n (of South Africa)
20.10.74	95	Unisel Gold Mines
4.6.87	97	United Plantations Africa
4.2.49	95	Vaal Reefs Exploration & Mining Co.
16.8.50	95	Venterspost Gold Mining Co.
16.6.45	95	Vlakfontein Gold Mining Co.
16.8.50	95	Vogelstruisbult Metal Holdings
28.3.47	95	Welkom Gold Hldgs.
18.8.50	95	West Rand Consolidated Mines
19.10.59	95	Western Areas Gold Mining Co.
19.1.59	95	Western Deep Levels
20.1.56	95	Winkelhaak Mines
29.9.50	95	Witwatersrand Gold Mining Co.
18.1.39	95	Witwatersrand Nigel
13.11.58	95	Zandpan Gold Mining Co.
		SPAIN (4)
16.6.86	78	Banco Central SA
25.4.85	78	Banco de Bilbao SA
26.4.85	78	Banco de Santander SA
27.6.85	88	Compania Telefonica Nacional De Espana
		SWEDEN (15)
28.6.79	73	AGA A/B
18.4.66	19	ASEA A/B
2.6.58	23	Alfa Laval A/B
2.5.85	67	Astra A/B
27.9.51	39	Electrolux
8.8.60	19	Ericsson (L.M.) (Telefon A/B)
20.8.79	53	Esselte A/B
30.7.84	87	Investment A/B Beijer
28.6.84	54	PLM A/B
29.3.83	66	Perstorp A/B
7.9.50	27	S.K.F. A/B
4.11.77	28	Sandvik A/B
27.6.83	68	Svenska Cellulosa A/B
18.10.51	27	Swedish Match Co.
1.12.72	43	Volvo A/B
		SWITZERLAND (1)
8.3.54	96	Aramayo Compagnie S.A.

Overseas Equities listed on the International Stock Exchange as at 31st December 1987

TABLE A5 cont.

Date Admitted	SE Group	
		TAIWAN (3)
14.3.86	87	Formosa Fund
23.5.86	87	Taipei Fund
28.10.83	87	Taiwan (R.O.C.) Fund
		THAILAND (1)
2.1.87	87	Thailand Fund
		TURKEY (1)
1.2.61	78	Ottoman Bank
		UNITED STATES OF AMERICA (195)
1.9.65	96	AMAX Inc.
11.12.78	67	Abbott Laboratories
22.9.86	87	Ahmanson (H.F.) & Co.
29.5.84	76	Alamco Inc.
26.1.82	83	Alexander & Alexander Services Inc.
22.5.87	27	Allied-Signal Inc.
3.9.81	32	Aluminum Co. of America
9.4.81	19	Amdahl Corp'n
31.12.85	63	American Brands Inc.
21.12.84	67	American Cyanamid Co.
15.7.77	78	American Express Co.
5.5.83	82	American General Corp'n
1.3.84	88	American Information Tech. Corp'n
2.9.76	68	American Medical International Inc.
21.1.82	88	American Telephone & Telegraph Co.
27.4.81	76	Amfac Inc.
30.10.86	45	Anheuser — Busch Companies Inc.
19.7.72	82	Aon Corp'n
20.10.77	91	Asarco Inc.
29.11.73	28	Baker International Corp'n
2.8.73	78	BankAmerica Corp'n
16.9.74	78	Bankers Trust New York Corp'n
14.3.70	32	Barnes Group Inc.
7.12.84	73	Basix Corp'n
20.4.78	67	Baxter Travenol Laboratories Inc.
15.2.84	88	Bell Atlantic Corp'n
15.2.84	88	Bellsouth Corp'n
11.1.80	28	Black & Decker Corp'n
14.1.80	27	Boeing Co.
24.7.84	54	Bowater Inc.
4.12.73	68	Browning Ferris Industries Inc.
9.7.75	73	Brunswick Corp'n
5.9.66	49	CPC International Inc.
7.12.84	72	CSX Corp'n
10.10.84	87	CalFed Inc.
9.12.82	49	Campbell Soup Co.
1.8.84	50	Carter Hawley Hale Stores Inc.
21.7.86	22	Caterpillar Inc.
17.12.84	70	Cenergy Corp'n
17.12.84	18	Centex Corp'n
8.12.86	87	Centrust Savings Bank
20.10.69	78	Chase Manhattan Corp'n
16.6.83	78	Chemical New York Corp'n
26.11.84	70	Chevron Inc.
8.1.65	43	Chrysler Corp'n
7.11.68	78	Citicorp
29.4.85	87	CityFed Financial Corp'n
4.12.86	70	Coastal Corp'n

Date Admitted	SE Group	UNITED STATES OF AMERICA cont'd
22.11.72	67	Colgate-Palmolive Co.
10.5.76	22	Colt Industries Inc.
4.11.85	72	Consolidated Freightways Inc.
30.4.74	78	Continental Illinois Corp'n
31.12.84	78	Continental Illinois Hldg. Corp'n
31.12.84	35	Cullinet Software Inc.
21.8.70	41	Cummins Engine Co. Inc.
30.11.72	68	Damon Corp'n
13.11.80	70	Damson Oil Corp'n
12.1.78	41	Dana Corp'n
8.6.84	35	Data General Corp'n
8.11.73	23	Dover Corp'n
30.11.72	68	Dow Chemical Co.
24.12.84	75	Dun & Bradstreet Corp'n
31.1.84	19	E-Systems Inc.
6.10.72	41	Eaton Corp'n
19.5.76	73	Emhart Corp'n
11.12.84	68	Engelhard Corp'n
28.3.84	70	Enron Corp'n
13.12.84	70	Enserch Corp'n
18.7.85	70	Exploration Co. of Louisiana Inc.
10.6.86	70	Exxon Corp'n
31.12.84	88	FPL Group
24.6.81	87	Financial Corp'n of America
12.10.72	78	First Chicago Corp'n
18.7.78	25	Fluor Corp'n
18.6.66	43	Ford Motor Co.
13.3.71	31	Foxboro Co.
28.3.74	72	GATX Corp'n
13.6.67	19	GTE Corp'n
4.10.73	19	General Electric Co.
12.10.81	19	General Instrument Corp'n
13.4.65	43	General Motors Corp'n
18.12.50	67	Gillette Co.
16.6.67	68	Grace (W.R.) & Co.
21.12.84	87	Great American First Savings Bank
7.12.06	92	Great Northern Iron Ore Properties
27.3.84	87	Great Western Financial Corp'n
10.8.84	70	Great Western Resources Inc.
30.6.86	11	Greyhound Corp'n
6.9.72	73	Gulf & Western Industries Inc.
16.3.73	70	Halliburton Co.
11.3.83	86	Hallwood Group Inc.
2.4.84	70	Hamilton Oil Corp'n
13.12.84	65	Hasbro Inc.
21.12.84	68	Hercules Inc.
10.10.84	44	Holmes Protection Group Inc.
18.12.84	80	Home Fedral Savings & Loan Association
11.9.86	82	Home Group Inc.
2.11.82	96	Homestake Mining Co.
8.6.72	35	Honeywell Inc.
20.12.84	76	Hospital Corp'n of America
4.6.84	88	Houston Industries Inc.
27.11.75	22	Hughes Tool Co.
17.10.72	87	Hutton (E.F.) Group Inc.
31.3.76	73	I.C. Industries
20.7.49	73	ITT Corp'n
7.1.71	73	IU International Corp'n
12.10.72	28	Ingersoll-Rand Co.
11.11.82	14	Insilco Corp'n

TABLE A5 cont.

Overseas Equities listed on the International Stock Exchange as at 31st December 1987

Date Admitted	SE Group	
		UNITED STATES OF AMERICA cont'd
19.7.73	35	International Business Machines Corp'n
13.5.83	86	International Income Property Inc.
18.2.74	28	International Systems & Control Corp'n
6.12.82	70	Jackson Exploration Inc.
23.1.86	54	Klearfold Inc.
8.1.81	49	Kraft Inc.
19.12.85	35	Lexicon Inc.
20.12.84	76	Limited Inc. (The)
4.12.84	81	Lincoln National Corp'n
23.5.80	65	Lionel Corp'n
30.6.86	27	Lockheed Corp'n
7.11.80	15	Lone Star Industries Inc.
20.9.79	70	Louisiana Land & Exploration Co.
7.10.81	13	Lowe's Companies Inc.
13.12.84	78	MCorp
20.3.73	78	Manufacturers Hanover Corp'n
6.6.80	83	Marsh & McLennan Co. Inc.
24.12.84	76	Martin Marietta Corp'n
7.4.72	87	Merrill Lynch & Co. Inc.
5.6.81	87	Mexico Fund Inc.
17.1.77	70	Mobil Corp'n
7.5.87	35	Molex Inc.
21.1.70	68	Monsanto Co.
7.6.73	78	Morgan (J.P.) & Co. Inc.
13.9.78	19	Motorola Inc.
20.11.69	35	NCR Corp'n
15.2.84	88	NYNEX Corp'n
18.11.80	76	National Medical Enterprises Inc.
8.5.80	70	Nicor Inc.
27.7.87	70	Occidental Petroleum Corp'n
5.5.67	75	Ogilvy Group Inc.
15.9.80	73	Orient Express Hotels Inc.
5.12.84	76	PHH Group Inc.
30.6.83	88	Pacific Gas & Electric Co.
15.2.84	88	Pacific Telesis Group
13.5.86	88	Pacificorp
17.12.84	76	Pall Corp'n
15.9.80	70	Pennzoil Co.
26.8.67	67	Pfizer Inc.
22.11.83	49	Pillsbury Co.
1.10.87	76	Premark International
18.6.87	76	Primerica Corp'n
20.12.84	31	Process Systems Inc.
1.5.86	88	Public Service Enterprise Group
24.5.73	49	Quaker Oats Co.
18.12.84	49	RJR Nabisco Inc
3.7.74	78	Republic New York Corp'n
18.6.79	27	Rockwell International Corp'n
3.11.83	27	Rohr Industries Inc.
15.5.81	51	Sara Lee Corp'n
11.10.73	86	Saul (B.F.) Real Estate Inv. Tst.
27.11.84	54	Scott Paper Co.
5.10.78	57	Sears Roebuck & Co.
28.6.79	78	Security Pacific Corp'n
22.6.73	39	Singer Co.
25.9.86	67	Smithkline Beckman Corp'n
19.6.81	88	Southern California Edison Co.
15.2.84	88	Southwestern Bell Corp'n
12.10.72	67	Squibb Corp'n
13.4.84	76	Stevens (J.P.) & Co. Inc.
10.12.87	70	Tenneco Inc.
17.7.73	27	TRW Inc.
26.3.69	70	Texaco Inc.
4.5.78	70	Texas Eastern Corp'n
15.2.77	52	Time Inc.
17.10.84	81	Torchmark Corp'n
23.10.84	35	Tracor Inc.
19.4.73	73	Transamerica Corp'n
13.12.84	47	Transworld Corp'n
11.12.73	82	Travelers Corp'n (The)
3.11.86	22	Trinova Corp'n
5.10.87	96	UNC Inc.
15.2.84	88	US WEST Inc.
9.7.87	82	USF&G Corp'n
1.5.86	81	USLIFE Corp'n
17.6.80	68	Union Carbide Corp'n
29.1.70	35	Unisys Corp'n
2.11.76	27	United Technologies Corp'n
12.5.77	48	Warner Communications Inc.
8.11.73	67	Warner-Lambert Co.
4.6.87	76	Waste Management Inc.
29.6.87	78	Wells Fargo & Co.
18.5.87	39	Whirlpool Corp'n
2.10.72	69	Xerox Corp'n
29.3.77	76	Xonics Inc.
30.5.74	70	Zapata Corp'n
		WEST INDIES (1)
9.7.48	97	JSE
		ZAMBIA (2)
1.4.68	96	Botswana RST
29.6.70	91	Zambia Consolidated Copper Mines
		ZIMBABWE (5)
6.6.46	95	Falcon Mines
1.1.58	91	Mhangura Copper Mines
24.11.43	92	Northchart Investments
24.5.52	97	Portland Holdings
27.4.50	96	Wankie Colliery Co.

UK companies listed on Overseas Stock Exchanges

TABLE A6

AMERICAN
B.A.T. Industries*
Courtaulds*

AMSTERDAM
Allied-Lyons
B.A.T. Industries
Bass
British Petroleum Co.
GKN
Grand Metropolitan
Great Universal Stores
Imperial Chemical Industries
Marks & Spencers
RTZ Corp'n
Rothmans International
THORN EMI

AUSTRALIAN (ASSOC. OF S.E.)
Charterhall
Dalgety
Paringa Mining & Exploration Co.

BRUSSELS
Allied-Lyons
B.A.T. Industries
Bass
Consolidated Gold Fields
Courtaulds
GKN
General Electric Co.
Imperial Chemical Industries
Marks & Spencers
RTZ Corp'n
Rothmans International
Sennah Rubber Co.
Shell Transport & Trading Co.
Whitbread & Co.

FRANKFURT
B.A.T. Industries
BTR
Bowater Industries
British Petroleum Co.
Consolidated Gold Fields
Fisons
GKN
Imperial Chemical Industries
National Westminster Bank
RTZ Corp'n
Rothmans International
Shell Transport & Trading Co.
THORN EMI

JOHANNESBURG
Charter Consolidated
Consolidated Gold Fields
Lonrho
Oceana Development Investment Trust
Tarry (E.W.)

KUALA LUMPAR
Inch Kenneth Kajang Rubber
Pahang Investments (T/S)
Pengkalen
Tanjong Tin Dredging

LUXEMBOURG
Imperial Chemical Industries
International Signal & Control Group
Marinex Petroleum
TR Energy

MONTREAL
B.A.T. Industries
Ultramar

NASDAQ
Airship Industries*
Beecham Group*
Bowater Industries*
Burmah Oil*
Cadbury Schweppes*
Carlton Communications*
Computerised Medical Systems*
Financial Systems Technology*
Fisons*
Glaxo Holdings*
Harvard Securities Group*
Huntingdon International Holdings*
Jaguar*
Rank Organisation*
Reuters Holdings*
Rodime*
Saatchi & Saatchi Co.*
Senetek*
Southbrook International Television Co.*

NEW YORK
Attwoods*
Barclays*
Beazer (C.H.) (Holdings)*
British Airways*
British Petroleum Co.*
British Telecommunications*
Burton Group*
Gencar Exploration*
Hanson Trust*
Imperial Chemical Industries*
National Westminster Bank*
Plessey Co.*
Shell Transport & Trading Co.*
Tricentrol*
Unilever*

NEW ZEALAND
Lloyds Bank
Tozer Kemsley & Millbourn (Holdings)

OSLO
Imperial Chemical Industries

PARIS
Bass
Bowater Industries
British Petroleum Co.
Charter Consolidated
Consolidated Gold Fields
Courtaulds
Glaxo Holdings
Grand Metropolitan
Imperial Chemical Industries
Marks & Spencers
Midland Bank
RTZ Corp'n
Shell Transport & Trading Co.
THORN EMI

SINGAPORE
Inch Kenneth Kajang Rubber
Pahang Investments (T/S)

TOKYO
BTR
Barclays
British Telecommunications
Cable & Wireless
Glaxo Holdings
Lonrho
Standard Chartered

TORONTO
British Telecommunications
Hammerson Property Investment & Development Corp'n
Tricentrol
Ultramar

VIENNA
Imperial Chemical Industries

ZURICH
B.A.T. Industries
BTR
Bowater Industries
British Petroleum Co.
Consolidated Gold Fields
Courtaulds
Great Universal Stores
Hanson Trust
Imperial Chemical Industries
RTZ Corp'n

**American Depository Receipt*

TABLE **B1**

Companies Newly Admitted to the Market October-December 1987

Listed — UK and Republic of Ireland

Date	Company	SE Group	Listed Securities	Type of Issue	Market Value at issue £m	Proceeds £m
1.10.87	Alba	36	Ordinary	PL	45.500	12.025
1.10.87	Arley Holdings	27	All Secs. (2)	I-R	12.384	—
1.10.87	Aran Energy	70	Ordinary	I	205.778	—
1.10.87	Havelock Europa	76	Ordinary	I-USM	43.560	—
2.10.87	Anglo Leasing	80	Ordinary	I-O/O	75.531	See B7
6.10.87	Butte Mining	96	Ordinary	PL	60.000	15.570
15.10.87	ISA International	35	Ordinary	PL	15.570	5.335
16.10.87	Lloyd Thompson Group	83	Ordinary	PL	43.702	9.860
19.10.87	Power Corp'n	86	Ordinary	PL	47.085	16.728
19.10.87	Securiguard Group	44	Ordinary	I-USM	19.742	—
19.10.87	Worcester Group	14	Ordinary	I-USM	42.143	—
20.10.87	Shaftesbury	86	Ordinary	PL	26.424	8.550
23.10.87	Record Holdings	28	All Secs. (2)	PL	22.000	4.353
26.10.87	Wilshaw Securities	14	Ordinary	I-R	8.260	—
30.10.87	Haden MacLellan Holdings	27	Ordinary	I-O/O	45.754	See B7
10.11.87	Feedex Agricultural Industries	49	Ordinary	I-R	22.559	See B6
10.11.87	Hard Rock International	47	Ordinary	I	63.669	—
16.11.87	GRA Group	48	Ordinary	I	79.218	—
26.11.87	TR Pacific Investment Trust	84	Ordinary	I	23.451	—
26.11.87	TR Portfolio Selection Fund	87	Ptg Rd Prf (4)	I	645.000	—
30.11.87	High-Point Services Group	75	Ordinary	I-USM	15.438	—
1.12.87	Proudfoot (Alexander)	75	Ordinary	I-R	131.896	See B6
3.12.87	Nestor-BNA	76	Ordinary	PL	26.422	5.217
7.12.87	J. S. Pathology	76	Ordinary	I-USM	60.337	—
9.12.87	Housing Finance Corp'n	6	Deb Stk (2)	PL	30.750	30.750
10.12.87	Eurotunnel Eurotunnel SA	72	Units	O/S	1,163.319	770.000
10.12.87	Paragon Communications	75	Ordinary	PL	4.346	1.087
10.12.87	Hunter Saphir	51	Ordinary	I-USM	38.569	—
17.12.87	How Group	18	Ordinary	PL	19.800	1.006
17.12.87	International Colour Management	35	Ordinary	PL	9.350	2.252
17.12.87	Thermal Scientific	19	Ordinary	I-USM	53.635	—
24.12.87	Atlantic Securities Trust	87	All Secs. (2)	I-USM	15.188	See B6/7

Listed — Overseas

		SE Group	Listed Securities	Type of Issue	Market Value at issue £m	Country of Origin (Proceeds) £m
1.10.87	Premark International	76	Stock	I	683.924	USA
5.10.87	UNC Inc.	96	Stock	I-S	139.786	USA
19.10.87	Lebowa Platinum Mines	96	Ordinary	I	236.934	South Africa
26.11.87	Mayne Nickless	72	Ordinary	I	345.075	Australia
30.11.87	Minorco SA	92	Ordinary	I-S	1,347.626	Bermuda
10.12.87	Lefkochrysos	96	Ordinary (NPV)	I	123.000	South Africa
10.12.87	Tenneco Inc.	70	Stock	I-S	3,406.321	USA
17.12.87	Goodman Fielder Wattie	49	Ordinary	I	798.774	Australia

Unlisted Securities Market

1.10.87	Marcol Group	35	Ordinary	PL	16.032	4.261
2.10.87	Explaura Holdings	96	Ordinary	O/S	15.918	5.760
6.10.87	Security Archives (Holdings)	76	Ordinary	O/S	8.138	2.300
6.10.87	URS International Inc.	76	Stock	PL	14.094	4.959
7.10.87	Banner Homes Group	18	Ordinary	PL	13.275	2.975
15.10.87	American Plastic Technologies Inc.	66	Stock	PL	11.720	3.589
15.10.87	Stanhope Properties	86	Ordinary	O/S-T	277.776	27.778
26.10.87	Tubular Exhibition Group	29	Ordinary	PL	9.128	4.000
29.10.87	Chartsearch	53	Ordinary	PL	7.371	1.106
2.11.87	Fairway (London)	69	Ordinary	PL	5.846	1.672
3.11.87	Company of Designers	75	Ordinary	PL	10.725	2.968
12.11.87	Sykes-Pickavant Group	28	Ordinary	PL	10.499	1.889
20.11.87	Highland Participants	71	Ordinary	I	21.391	—
27.11.87	Trevian Holdings	86	Ordinary	PL	6.473	0.700
30.11.87	Pathfinders Group	75	Ordinary	PL	4.297	0.945
30.11.87	Printech International	53	Ordinary	PL	11.796	1.777
4.12.87	Allied Restaurants	47	Ordinary	PL	5.375	1.900
14.12.87	Reflex Investments	35	Ordinary	PL	4.975	0.995
14.12.87	Shorco Group Holdings	18	Ordinary	PL	2.450	0.960

Companies Newly Admitted
October-December 1987

TABLE **B1** cont.

Unlisted Securities Market (continued)

Date	Company	SE Group	Listed Securities	Type of Issue	Market Value at issue £m	Proceeds £m
21.12.87	Hatfield Estates	18	Ordinary	PL	7.500	0.750
24.12.87	Mowat Group	86	Ordinary	I	6.192	—
Third Market						
19.10.87	Kemp (P.E.) Holdings	29	Ordinary	PL	2.714	0.420
16.11.87	Tomorrows Leisure	48	Ordinary	I	3.774	—
19.11.87	Propellor	59	Ordinary	PL	5.628	1.126
23.11.87	M.L. Laboratories	67	Ordinary	PL	16.000	2.000
30.11.87	Video Tape Recording	48	Ordinary	PL	5.872	1.785
15.12.87	Gaelic Resources	70	Ordinary	I	3.582	—
17.12.87	Staks Holdings	56	Ordinary	I	4.696	—

Footnote

I	Introduction
PL	Placing
O.S	Offer for Sale
O.S-T	Offer for Sale by Tender
O.Sub	Offer for subscription
P	Prospectus
I-R	Introduction by Rights Issue
I-S	Introduction in substitution for a company already listed
I-TS	Introduction in substitution for a company previously temporarily suspended
UT	Unit Trust

TABLE B2

Cancellations, Suspensions and Restorations October-December 1987

Cancelled Listed

Company	SE Group	Type of Security	Reason Code	Date Cancelled
Photax (London)	48	All Secs. (2)	(1-7)	1.10.87
Ayer Hitam Tin Dredging Malaysia Bhd	93	Shares	(1-)	5.10.87
Hudson's Bay Co.	73	Shares (NPV)	(1)	5.10.87
Marawan (Java) Rubber Plantations	89	Shares	(-7)	5.10.87
Renong Tin Dredging Co.	93	Stock	(-7)	12.10.87
Edinburgh Ice Rink	48	Ordinary	(-7)	12.10.87
Holliday (L.B.) (Holdings)	7	Cum Prf Shares	(-7)	12.10.87
Howard Machinery	27	Ordinary	(1-7)	26.10.87
Wilshaw Securities	22	Ordinary	(1-7)	30.10.87
MacLellan (P. & W.)	27	Ordinary	(1-7)	10.11.87
Feedex Agricultural Industries	49	Ordinary	(-7)	16.11.87
Coghlans	33	All Secs. (2)	(1-7)	16.11.87
GRA Group	48	Ordinary	(-7)	16.11.87
Kraft Productions	38	Ordinary	(-7)	16.11.87
Oceana Holdings	—	All Secs. (2)	(-7)	16.11.87
Sherman (Samuel)	59	Ordinary	(1-)	20.11.87
Appledore (A. & P.) Group	76	Ordinary	(1-)	26.11.87
TR Pacific Basin Investment Trust	84	All Secs. (2)	(-7)	30.11.87
Danks Gowerton	33	Ordinary	(-7)	30.11.87
Herman Smith	41	Ordinary	(-7)	30.11.87
Allen (W.G.) & Sons (Tipton)	23	All Secs. (2)	(-7)	30.11.87
Cocksedge (Holdings)	18	All Secs. (2)	(1-7)	1.12.87
City & Foreign Holdings	76	Ordinary	(1-7)	24.12.87
Lyle Shipping	72	All Secs. (3)		

Unlisted Securities Market

Company	SE Group	Type of Security	Reason Code	Date Cancelled
Castle (G.B.)	56	Ordinary	(-7)	30.11.87

Temporarily Suspended Listed

Company	SE Group	Type of Security	Reason Code	Date Suspended	Date Restored
Feedex Agricultural Industries	49	Ordinary	(1-2)	1.10.87	See Cancelled
Hill Samuel Group	85	All Secs. (4)	(1-2)	1.10.87	2.10.87
Hill Samuel Finance BV	6	Ftg Rt Nts 1996	(1-2)	1.10.87	2.10.87
North Sea Assets	87	Ordinary	(1-2)	1.10.87	25.11.87
Quest Group	35	Ordinary	(1-2)	2.10.87	6.10.87
Hawtal Whiting Holdings	76	Ordinary	(1-2)	5.10.87	7.10.87
First Security Group	44	Ordinary	(1-2)	5.10.87	7.10.87
Equity & Law	81	Ordinary	(1-2)	7.10.87	7.10.87
Unigroup	59	All Secs. (2)	(1-2)	8.10.87	
Barlows	72	Ordinary	(1-2)	14.10.87	19.10.87
Phicom	35	All Secs. (2)	(1-2)	15.10.87	19.10.87
New Cavendish Estates	86	Ordinary	(1-2)	15.10.87	19.10.87
Prowting	8	All Secs. (2)	(1-4)	26.10.87	
PLM A B	54	All Secs. (2)	(-5)	26.10.87	11.11.87
Western Motor Holdings	42	All Secs. (2)	(1-2)	27.10.87	20.11.87
Westminster & County Properties	86	All Secs. (2)	(1-2)	29.10.87	
Kennedy Smale	76	All Secs. (2)	(1-2)	9.11.87	11.11.87
McLeod Russel Holdings	90	All Secs. (2)	(1-2)	9.11.87	11.11.87
County Properties Group	86	All Secs. (2)	(1-2)	9.11.87	11.11.87
Banco de Bilbao SA	78	All Secs. (2)	(-5)	20.11.87	7.12.87
Abaco Investments	87	Ordinary	(1-2)	7.12.87	8.12.87
Chase Property Holdings	86	Ordinary	(1-2)	22.12.87	23.12.87
Britoil	70	Ordinary	(1-2)	23.12.87	23.12.87

Unlisted Securities Market

Company	SE Group	Type of Security	Reason Code	Date Suspended	Date Restored
Bula Resources Holdings	70	Ordinary	(1-2)	6.10.87	7.10.87
RKF Group	18	Ordinary	(1-2)	3.11.87	4.11.87

Cancellations, Suspensions and Restorations October-December 1987

TABLE **B2** cont.

Unlisted Securities Market (continued)

Company	SE Group	Type of Security	Reason Code	Date Suspended	Date Restored
Consolidated Tern Investments	18	Ordinary	(1-2)	12.11.87	21.12.87
CCA Galleries	76	Ordinary	(1-2)	26.11.87	30.11.87
Sims Catering Butchers	49	Ordinary	(1-2)	2.12.87	7.12.87
Broad Street Group	75	Ordinary	(1-2)	11.12.87	15.12.87
Sharp & Law	76	Ordinary	(1-2)	14.12.87	
Restored from Previous Quarter					
Listed					
Marler Estates	86	All Secs. (2)	(1-2)	22.9.87	22.10.87
Wood (Arthur) & Son (Longport)	40	All Secs. (2)	(1-2)	21.7.87	26.10.87
Witswatersrand Nigel	95	Ordinary	(-5)	29.6.87	16.11.87
Tysons (Contractors)	18	Ordinary	(1-2)	11.6.87	7.12.87
Unlisted Securities Market					
Sapphire Petroleum	70	Ordinary	(1-2)	16.7.87	6.10.87
Fletcher Dennys Systems	35	Ordinary	(1-2)	26.8.87	29.10.87
Third					
Unit Group	54	Ordinary	(1-2)	4.6.87	9.10.87

Classification of Temporary Suspensions of Listing

(1) At the request of the Company.
(2) Pending an announcement or further announcement.
(3) Consequent upon the acquisition of all, or practically all, the securities in question by another company or group of Companies.
(4) Pending publication of particulars of the reorganisation of the Company.
(5) Pending lifting of suspension on an Overseas Exchange.
(6) Pending clarification of the position of the Company.
(7) Listing cancelled following a period of temporary suspension.
(8) The market capitalisation and shareholding position is such that an adequate market in the security cannot be maintained.

TABLE B3

Mergers and Changes of Company Title October-December 1987

Companies leaving the market through mergers

Listed

SE Group	Acquired Company	SE Group	Acquiring Company	Date
49	Home Farm Products	USM	Sutherland Holdings	7.10.87
USM	Thermax Holdings	14	Heywood Williams Group	7.10.87
USM	Trade Promotion Services Group	52	EMAP	7.10.87
49	Avana Group	49	Ranks Hovis McDougall	21.10.87
7	Bestobell	27	Meggitt Holdings	21.10.87
62	Berisfords	54	Ferguson Industrial Holdings	21.10.87
42	British Car Auction Group	73	Hawley Group	21.10.87
75*	Extel Group	52	United Newspapers	21.10.87
47	Garfunkels Restaurants	47	Belhaven	21.10.87
58	Goldsmiths Group	67	Oriflame International	21.10.87
66	Hallite	27	Evered Holdings	21.10.87
48	Horizon Travel	45	Bass	21.10.87
35	Micro Scope	35	General Electric Co.	21.10.87
21	Mitchell Somers	11	Eagle Trust	21.10.87
64	Newbold & Burton Holdings	64	Black (Peter) Holdings	21.10.87
11	Peerless	14	Newman Tonks Group	21.10.87
11	Scott Greenham Group	73	BET	21.10.87
41	Supra Group	68	Evode Group	21.10.87
74	Sunlight Service Group	74	Davis (Godfrey) (Holdings)	21.10.87
86	Apex Properties	USM	Randsworth Trust	21.10.87
USM	Appletree	49	Appletree Holdings	21.10.87
USM	DBE Technology Group	35	Ferranti	21.10.87
86	Belgrave Holdings	Unlisted	PK English Trust Co.	28.10.87
35	Comcap	35	Atlantic Computers	28.10.87
USM	Ford & Weston	18	Raine Industries	28.10.87
53	Octopus Publishing Group	52	Reed International	4.11.87
USM	American Electronic Components	19	Burgess Group	11.11.87
USM	Rotunda	11	Scapa Group	11.11.87
53	Associated Book Publishers	52	International Thompson Organisation	18.11.87
73	Borg-Warner Corp'n	Unlisted	AV Acquiring Corp'n	18.11.87
USM	Media Technology International	48	Lee International	18.11.87
27*	Babcock International	27	FKI Electricals	2.12.87
21	Lloyd (F.H.) Holdings	21	Triplex	2.12.87
86	Standard Securities	USM	Local London Group	2.12.87
86*	Centrovincial Estates	Unlisted	Gilbert House Investments	2.12.87
USM	Bipel Group	34	CI Group	2.12.87
USM	Coline International	35	Dubilier International	2.12.87
29	Crown House	38	Coloroll Group	9.12.87
20	Dom Holdings	17	Hunter	9.12.87
14	Feb International	14	Tarmac	9.12.87
64	Garner Booth	64	Pittard Group	9.12.87
53*	Howard & Wyndham	Unlisted	Intermediate Securities	9.12.87
35	Miles 33	35	U.E.I.	9.12.87
19	Stone International	27	FKI Electricals	9.12.87
58	Superdrug Stores	58	Woolworth Holdings	9.12.87
84	General Funds Investment Trust	86	Rosehaugh	9.12.87
84	G.T. Global Recovery Investment Trust	80	Baltic	9.12.87
86	Lynton Holdings	86	Lynton Property & Reversionary	9.12.87
USM	Browns (Charlie) Car Part Centres	58	Woolworth Holdings	9.12.87
USM	Holden Hydroman	41	BBA Group	9.12.87
USM	Johnson & Jorgensen Packaging	54	Waddington (John)	9.12.87
USM	Norscot Hotels	48	Pleasurama	9.12.87
58*	Combined English Stores	58	Next	16.12.87
USM	Technology for Business	80	Combined Lease Finance	31.12.87

Unlisted Securities Market

49	Home Fare Products	49	Sutherland Holdings	7.10.87
41	Thermax Holdings	14	Heywood Williams Group	7.10.87
76	Trade Promotion Services	52	EMAP	7.10.87
87	United Trust & Credit	87	UTC Group	7.10.87
48	Viewplan	48	Trilion	7.10.87
86	Apex Properties	86	Randsworth Trust	21.10.87
49	Appletree	49	Appletree Holdings	21.10.87

Mergers and Changes of Company Title
October-December 1987

TABLE **B3** cont.

Unlisted Securities Market (continued)

SE Group	Company's Previous Name		Company's New Name	Date
35	DBE Technology Group	35	Ferranti	21.10.87
18	Ford & Weston	18	Raine Industries	28.10.87
19	American Electronic Components	19	Burgess Group	11.11.87
66	Rotunda	11	Scapa Group	11.11.87
48	Media Technology International	48	Lee International	18.11.87
86	Standard Securities	86	Local London Group	2.12.87
66	Bipel Group	34	CI Group	2.12.87
35	Coline International	35	Dubilier International	2.12.87
58	Browns (Charlie) Car Part Centres	58	Woolworth Holdings	9.12.87
76	Holden Hydroman	41	BBA Group	9.12.87
54	Johnsen & Jorgensen Packaging	54	Waddington (John)	9.12.87
47	Norscot Hotels	48	Pleasurama	9.12.98
35	Technology for Business	80	Combined Lease Finance	31.12.87

Change of company title

SE Group	Company's Previous Name	Company's New Name	Date
68	Ault & Wiborg Group	Sequa	7.10.87
35	Dubilier	Dubilier International	7.10.87
18	Warrington (Thomas) & Son	Warringtons	7.10.87
83	Hogg Robinson Group	Hogg Robinson & Gardner Mountain	7.10.87
27	Photax (London)	Arley Holdings	21.10.87
72	Common Brothers	Norex	21.10.87
53	British Printing & Communications Corp'n	Maxwell Communications Corp'n	28.10.87
19	Emess Lighting	Emess	28.10.87
21	Triplex	Triplex Lloyd	28.10.87
54	N.M.C. Investments	NMC Group	28.10.87
64	Edenderry Shoes	Edenderry Group	4.11.87
6	British American Tobacco Investments	B.A.T. Investments	11.11.87
70	United Guarantee (Holdings)	United Guarantee	11.11.87
23	Whittington Engineering Co.	Whittington	11.11.87
20	BETEC	Clayhithe	18.11.87
59	Goodman Brothers	Goodman Group	18.11.87
6	Massey-Ferguson Holdings	Varity Holdings	18.11.87
18	Walker (Alfred)	Landleisure	18.11.87
86	London Shop Property Trust	London Shop	18.11.87
22	APV Baker	APV	25.11.87
11	Allied Plant Group	Allied Partnership Group	25.11.87
11	Burns-Anderson	Burns-Anderson Group	25.11.87
27	FKI Electricals	FKI Babcock	2.12.87
86	Ewart New Northern	Ewart	2.12.87
6	General Electric Credit Corp'n	General Electric Capital Corp'n	23.12.87
75	City & Foreign Holdings	Proudfoot (Alexander)	23.12.87
28	Irish Glass Bottle Co.	Irish Glass	23.12.87
73	Hanson Trust	Hanson	31.12.87

Unlisted Securities Market

70	North Sea & General Oil Investments	North Sea & General	25.11.87
48	Television Services International	Molinaire Visions	9.12.87
87	Guernsey Atlantic Securities Trust	Atlantic Securities Trust	23.12.87
75	Moss Advertising Group	Moss Trust	31.12.87

Third Market

75	Edenspring Investments	Broadcast Communications	19.8.87

* Some Fixed Interest Stocks still remaining.

TABLE **B4**

Analysis of Applications for Listing granted October-December 1987

New Issues Proceeds (Public Sector)

	Total £m	British Government £m	Irish Government £m	Corporation and County £m	Public Boards £m	Overseas Public Sector £m	Bulldogs £m
1973	3,766	3,504	—	262	—	—	—
1974	3,343	2,692	—	631	20	—	—
1975	7,260	6,225	—	1,017	5	13	n/a
1976	9,022	7,968	—	1,042	12	142	n/a
1977	15,283	13,300	—	1,284	5	694	n/a
1978	9,459	8,281	—	1,013	12	153	n/a
1979	16,510	14,119	1,240	641	5	505	n/a
1980	18,003	15,853	745	775	28	602	n/a
1981	14,499	12,016	569	831	10	1,073	n/a
1982	15,902	10,313	1,237	1,011	3	3,338	n/a
1983	19,879	14,077	1,397	1,033	—	3,372	n/a
1984	23,637	14,096	1,550	777	—	7,214	n/a
1985	27,710	17,249	1,802	350	—	8,309	n/a
1986	26,271	16,811	2,305	192	—	6,963	n/a
1987	22,464	15,243	2,415	71	59	4,335	341
1985							
1st	7,594	4,807	281	84	—	2,422	n/a
2nd	8,653	4,768	632	100	—	3,153	n/a
3rd	4,997	2,788	662	98	—	1,449	n/a
4th	6,466	4,886	227	68	—	1,285	n/a
1986							
1st	6,861	4,495	624	59	—	1,683	n/a
2nd	5,462	2,863	491	72	—	2,036	n/a
3rd	7,356	5,046	313	35	—	1,962	n/a
4th	6,592	4,407	877	26	—	1,282	n/a
1987							
1st	7,232	5,011	861	28	—	1,332	n/a
2nd	6,012	3,957	778	22	59	1,196	n/a
3rd	3,694	2,336	580	14	—	567	197
4th	5,526	3,939	196	7	—	1,240	144

Public Sector

	Number Granted	Total Nominal Valuation £m	Proceeds £m	No. of Redemptions	Nominal Value £m of Redemptions
BRITISH FUNDS					
Shorts (0-7 years to run)	8	2,050.0	2,033.3	—	—
Medium (7-15 years to run)	10	1,250.0	1,268.3	—	—
Others (over 15 years to run)	9	651.7	637.1	—	—
TOTAL	27	3,951.7	3,938.7	—	—
IRISH GOVERNMENT & CORPORATIONS					
Shorts (0-7 years to run)	9	172.6	165.5	—	—
Medium (7-15 years to run)	2	31.2	30.7	—	—
Others (over 15 years to run)	—	—	—	—	—
TOTAL	11	203.8	196.2	—	—
CORPORATION & COUNTY STOCKS	17	7.7	7.7	—	—
PUBLIC BOARDS	—	—	—	—	—
OVERSEAS PUBLIC SECTOR	6	1,287.4	1,239.8	—	—
BULLDOGS	1	150.0	144.0	—	—
GRAND TOTAL	62	5,600.6	5,526.4	—	—

Analysis of Applications granted October-December 1987

TABLE **B5**

New Issues Proceeds (UK Company Sector)

	Total £m	Equities £m	Preference £m	Participating Redeemable Preference £m	Loans £m	Convertibles £m	I.I.I. £m	Bulldogs £m	Eurobonds £m	USM £m
1973	335	276	15	—	13	31	—	n/a	—	—
1974	214	175	14	—	10	15		n/a	—	—
1975	1,783	1,521	55	—	12	120	75	n/a	—	—
1976	1,269	1,157	22	—	—	90	—	n/a	—	—
1977	1,204	1,083	50	—	—	1	70	n/a	—	—
1978	1,396	1,324	49	—	10	1	12	n/a	—	—
1979	1,608	1,170	35	35	55	36	45	n/a	232	—
1980	1,647	1,098	62	193	2	222	43	n/a	27	14
1981	2,909	2,493	60	60	30	253	13	n/a	—	87
1982	3,120	1,776	49	231	891	73	—	n/a	100	118
1983	4,581	2,569	108	1,274	461	99	—	n/a	70	252
1984	9,001	6,899	61	858	490	173	—	n/a	520	262
1985	13,846	4,775	9	431	597	795	—	n/a	7,239	344
1986	23,250	14,019	33	528	1,243	320	—	n/a	7,107	446
1987	26,657	18,648	111	30	1,275	982	—	3,099	2,512	940
1985										
1st	1,386	1,094	—	—	18	154	—	n/a	120	72
2nd	4,868	2,299	—	228	91	404	—	n/a	1,846	90
3rd	3,296	542	3	10	124	223	—	n/a	2,394	100
4th	4,296	840	6	193	364	14	—	n/a	2,879	82
1986										
1st	2,779	703	4	500	197	57	—	n/a	1,318	55
2nd	6,262	2,843	5	—	696	180	—	n/a	2,538	118
3rd	4,709	1,801	20	—	263	53	—	n/a	2,572	127
4th	9,500	8,672	4	28	87	30	—	n/a	679	146
1987										
1st	4,278	2,424	—	—	121	208	—	n/a	1,525	74
2nd	6,159	3,182	9	4	746	156	—	1,900	162	168
3rd	9,922	8,509	81	26	130	435	—	544	197	448
4th	6,298	4,533	21	—	278	183	—	655	628	250

Company Securities Proceeds

	Listed							
	No. of Issues	UK & Irish Proceeds £m	No. Issues	Overseas Proceeds £m	No. of Issues	USM Proceeds £m	No. of Issues	Third Market Proceeds £m
Equity	1,007	4,533.4	86	874.6	145	232.3	17	7.1
Preference	2	21.2	—	—	—	—	—	—
Loans	9	278.2	—	—	—	—	—	—
Convertibles	7	182.5	1	35.0	2	17.4	1	5.3
Participating Redeemable Preference	2	—	—	—	—	—	—	—
Eurobonds	6	627.7	8	438.2	—	—	—	—
Bulldogs*	8	654.6	2	275.4	—	—	—	—
TOTAL PROCEEDS	1,041	6,297.6	97	1,623.2	147	249.7	18	12.4

*Sterling denominated Eurobond.

TABLE **B6**

UK Companies Making Rights Issues Raising over £1 Million in Proceeds October-December 1987

Listed

Date	SE Group	Company	Offer	Price	Proceeds £m.
2.10.87	11	Associated British Engineering	2-5	6p	4.638
5.10.87	28	Press Tools	1-1	80p	1.920
8.10.87	59	Martin (Albert) Holdings	3-10	145p	5.411
12.10.87	42	Cowie (T.)	3-10	159p	46.057
12.10.87	14	Heywood Williams Group	1-4	310p	30.391
12.10.87	18	Warringtons	1-1	115p	3.783
14.10.87	74	Sketchley	1-4	400p	28.826
15.10.87	85	Kleinwort Benson Lonsdale	1-3	450p	148.539
15.10.87	48	Ladbroke Group	1-5	378p	268.380
15.10.87	53	Wace Group	1-3	270p	16.582
16.10.87	33	Lilleshall Co. (The)	9-20	385p	3.973
19.10.87	32	Birmingham Mint Group	1-4	213p	6.010
19.10.87	86	Peachy Property Corp'n	1-4	380p	32.914
21.10.87	59	Lanca	1-3	70p	2.287
22.10.87	87	A.C. Holdings	1-1	500p	10.000
23.10.87	38	Stonehill Holdings	2-1	30p	3.360
26.10.87	27	United Scientific Holdings	2-3	100%	37.046
29.10.87	53	St. Ives Group	2-9	850p	50.279
30.10.87	14	Baldwin	5-12	160p	3.433
30.10.87	13	British Fittings Group	3-4	100p	7.037
		3 Applications under £1m.			1.515
		TOTAL PROCEEDS			**712.381**
2.11.87	18	Falcon Industries	1-6	100p	5.375
2.11.87	70	TR Energy	4-5	27p	11.574
2.11.87	18	Turriff Corp'n	1-3	325p	5.205
2.11.87	85	Ansbacher (Henry) Holdings	1-20	992p	69.980
2.11.87	86	Southend Stadium	5-6	100%	39.876
6.11.87	44	Securiguard Group	1-2	260p	9.005
10.11.87	11	Eagle Trust	1-8	30p	21.235
10.11.87	49	Feedex Agricultural Industries	38-100	45p	2.327
		TOTAL PROCEEDS			**164.577**
1.12.87	75	Proudfoot (Alexander)	42-10	200p	90.042
14.12.87	65	Era Group	1-8	25p	1.606
16.12.87	81	New Ireland Holdings	1-1	IR 380p	16.758
18.12.87	87	North Sea Assets	2-1	20p	4.800
22.12.87	48	Mecca Leisure Group	2-7	140p	30.710
24.12.87	87	Atlantic Securities Trust	3-4	100%	15.188
		1 Application under £1m.			0.400
		TOTAL PROCEEDS			**159.504**
		TOTAL PROCEEDS FOR THE QUARTER			**1,036.462**
		TOTAL PROCEEDS FOR THE YEAR			**8,453.040**

UK Companies making Rights Issues raising over £1 million in Proceeds October-December 1987

TABLE **B6** cont.

Date	SE Group	Company	Offer	Price	Proceeds £m.
Unlisted Securities Market					
1.10.87	87	UTC Group	1-4	300p	8.728
6.10.87	75	Pacific Sales Organisation	3-8	200p	3.750
7.10.87	53	Quarto Group Inc.	1-4	136p	2.585
7.10.87	76	Tribble Harris Li Inc.	1-4	150p	4.716
12.10.87	86	New England Properties	1-7	45p	5.383
12.10.87	48	Williams (Rex) Leisure	1-2	40p	2.200
15.10.87	51	Hunter Saphir	1-8	265p	6.945
19.10.87	86	Local London Group	1-4	735p	21.795
26.10.87	47	Harmony Leisure Group	1-1	66p	8.599
26.10.87	48	Marina Development Group	1-1	500p	37.270
		1 Application under £1m.			0.279
		TOTAL PROCEEDS			**102.250**
2.11.87	35	Composoft Holdings	2-3	30p	1.520
10.11.87	48	Cityvision	1-6	80p	4.375
27.11.87	76	Applied Holographics	1-4	300p	8.684
30.11.87	18	RKF Group	4-5	18p	7.868
		TOTAL PROCEEDS			**22.447**
12.87		3 Applications under £1m.			1.595
		TOTAL PROCEEDS			**1.595**
		TOTAL PROCEEDS FOR THE QUARTER			**126.292**
Third Market					
13.10.87	53	Publishing Holdings	2-7	55p	1.788
		TOTAL PROCEEDS			**1.788**
		TOTAL PROCEEDS FOR THE QUARTER			**1.788**

TABLE B7

UK Companies Making Further Issues over £1m in Proceeds October-December 1987

Listed

Date	SE Group	Company	Type of Issue	Price	Proceeds £m.
1.10.87	14	Pilkington	O/O	290p	265.721
2.10.80	80	Anglo Leasing	O/O	175p	14.367
2.10.87	58	European Home Products	PL	325p	3.998
5.10.87	38	Minty	PL	450p	1.500
6.10.87	86	Allied London Properties	PL	100p	40.000
7.10.87	6	Chester Waterworks Co.	PL	100%	1.500
8.10.87	49	Freshbake Foods Group	O/O	159.5p	1.272
9.10.87	41	Britannia Security Group	O/O	217p	13.232
12.10.87	86	Regentcrest	O/O	170p	5.112
13.10.87	59	Top Value Industries	O/O	102p	2.923
13.10.87	75	Lowe Howard Spink & Bell	O/O	500p	22.000
14.10.87	51	Morrison (William) Supermarkets	PL	100p	46.658
16.10.87	11	C.H. Industries	PL	167p	10.046
19.10.87	85	Hambros	IFC	325p	9.750
20.10.87	86	Dwyer & Co.	O/O	300p	6.590
20.10.87	68	Highgate & Job Group	IFC	200p	1.200
21.10.87	86	London & Metropolitan	O/O	275p	27.498
26.10.87	76	Cresta Holdings	O/O	210p	6.477
26.10.87	6	Nationwide Anglia Building Society	PL	100%	20.000
29.10.87	76	Fitzwilton	O/O	IR 120p	14.032
29.10.87	42	Keep Trust	IFC	400p	11.755
30.10.87	27	Haden MacLellan	O/O	150p	60.977
30.10.87	58	Lloyds Chemists	O/O	110p	8.183
30.10.87	70	British Petroleum Co.	O/S	330p	1,513.465
2.11.87	70	New London Oil	O/O	45p	6.728
5.11.87	27	Tyzack (W.A.)	O/O	160p	8.498
5.11.87	86	Helical Bar	O/O	100p	18.930
6.11.87	74	Baynes (Charles)	O/O	112p	21.970
9.11.87	86	Berkeley & Hay Hill Investments	O/O	43.5p	8.560
10.11.87	86	Caird (A.) & Sons	O/O	262.5p	10.097
11.11.87	15	CRH	PL	IR 200p	33.596
12.11.87	35	Phicom	O/O	77p	39.014
13.11.87	72	Barlows	O/O	160p	3.326
16.11.87	18	Abbey	PL	IR 330p	10.363
16.11.87	27	Porter Chadburn	O/O	120p	7.992
23.11.87	70	Concorde Energy	O/O	78p	13.129
23.11.87	6	Nationwide Anglia Building Society	PL	100%	20.000
3.12.87	70	London & Scottish Marine Oil	PL	105.98%	21.196
4.12.87	97	NESCO Investments	IFC	180p	1.980
7.12.87	18	Tysons (Contractors)	IFC	15p	1.500
14.12.87	65	Era Group	IFC	70p	1.750
15.12.87	42	Lookers	IFC	300p	1.274
15.12.87	87	British & Commonwealth Holdings	PL	91.545%	91.545
17.12.87	86	Mountleigh Group	IFC	300p	50.000
17.12.87	86	Mountleigh Group	IFC	300p	2.757
18.12.87	87	North Sea Assets	IFC	20p	1.200
18.12.87	6	First Debenture Finance	PL	99.057%	79.246
21.12.87	6	Nationwide Anglia Building Society	PL	100%	20.000
22.12.87	77	Midland Bank	IFC	475p	383.029
24.12.87	87	Atlantic Securities Trust	PL	72p	4.860

Unlisted Securities Market

2.10.87	75	Blenheim Exhibitions Group	O/O	505p	10.225
12.10.87	48	Williams (Rex) Leisure	IFC	40p	2.800
23.10.87	53	Colorgraphic	PL	220p	1.320
23.10.87	86	Shield Group	O/O	100p	12.046
29.10.87	35	Fletcher Dennys Systems	IFC	5p	1.800
12.11.87	70	Bula Resources (Holdings)	IFC	IR 8.9p	3.969
12.11.87	70	Bula Resources (Holdings)	O/O	IR 7.8p	1.915
16.11.87	53	Sterling Publishing Group	O/O	131p	2.983

UK Companies Making Further Issues over £1m in Proceeds October-December 1987

TABLE **B7** cont.

USM (cont)

Date	SE Group	Company	Type of Issue	Price	Proceeds £m.
2.12.87	27	Willaire Systems	O/O	100p	5.400
24.12.87	76	CCA Galleries	O/O	125p	5.150

Third Market

10.11.87	69	Abelscot Group	O/O	100p	5.268

TABLE B8

Vendor Placings October-December 1987

Listed

Vendor Placings valued at more than £10m were:

Date	SE Group	Acquiring Company	SE Group	Acquired Company	Value of offer
1.10.87	14	Pilkington	Unlisted	Vision Care Business	309.702
1.10.87	48	Pleasurama	47	President Entertainments	82.609
5.10.87	52	International Business Communications (Holdings)	53	Barham Group	74.591
7.10.87	11	Cookson Group	Unlisted	Polyclad Inc.	45.756
9.10.87	44	Britannia Security Group	Unlisted	Leahy Business Archives	14.634
12.10.87	69	Telephone Rentals	Unlisted	Band (V.)	18.208
13.10.87	75	Lowe Howard Spink & Bell	Unlisted	Laurence, Charles, Free & Lawson Inc.	23.188
16.10.87	11	C.H. Industrials	Unlisted	Gripperods International & DMI Holdings	37.225
19.10.87	33	Johnson & Firth Brown	21	Woodhouse & Rixson (Holdings)	12.919
19.10.87	45	Whitbread & Co.	Unlisted	Burrough (James)	88.469
20.10.87	27	Dowty Group	Unlisted	Datatel Inc.	19.714
21.10.87	19	Chloride Group	USM	Powerline International	20.019
22.10.87	97	Polly Peck International	Unlisted	Capetronic Group	13.033
26.10.87	41	BBA Group	Unlisted	Ottery Industries	17.958
27.10.87	45	Scottish & Newcastle Breweries	45	Brown (Matthew)	102.291
29.10.87	76	Fitzwilton	42	30% Holding in Keep Trust	14.455
30.10.87	58	Lloyds Chemists	Unlisted	Billington (F.A.) Holdings & Scott Chemists	22.696
30.10.87	18	Walker (Alfred)	USM	Aspinall Holdings	75.582
2.11.87	70	BOM Holdings	Unlisted	Albancode Group	29.906
6.11.87	74	Baynes (Charles)	USM	Technocal Component Industries	14.311
12.11.87	35	Phicom	Unlisted	Forma Scientific Inc.	18.511
13.11.87	18	Raine Industries	18	Aberdeen Construction Group	35.262
16.11.87	75	Avis Europe	42	Brammal (C.D.)	67.195
17.11.87	35	Ferranti	35	International Signal & Control Group	240.273
20.11.87	86	Control Securities	—	Property	28.260
23.11.87	75	Avis Europe	Unlisted	Locadif SA	15.834
25.11.87	35	Amstrad	Unlisted	Indescomp SA	10.134
30.11.87	82	General Accident Fire & Life Assurance Corp'n	Unlisted	EAZ	12.222
1.12.87	11	Eagle Trust	48	Samuelson Group	21.229
14.12.87	47	Kennedy Brookes	Unlisted	Londonderry & Howard Hotels	10.669
18.12.87	51	FII-Fyffes	46	Holding in Irish Distillers Group	10.800
21.12.87	76	Attwoods	Unlisted	Industrial Waste Service Inc.	10.873
23.12.87	81	Legal & General Group	Unlisted	40% Holding in Parkers of Reading	10.126
24.12.87	76	Kennedy Smale	90	McLeod Russel Holdings	55.203
31.12.87	36	Granada Group	36	Electronic Rentals Group	140.241

Unlisted Securities Market

Vendor Placings valued at more than £5m were:

Date	SE Group	Acquiring Company	SE Group	Acquired Company	Value of offer
2.10.87	75	Blenheim Exhibitions Group	Unlisted	Online International	15.692
6.10.87	75	Pacific Sales Organisation	Unlisted	Ultimate Equipment & Office Supplies	7.760
28.10.87	35	Zygal Dynamics	Unlisted	Coulson Heron Associates	7.563
18.12.87	70	North Sea & General	Unlisted	Indian Ocean Resources	10.866
23.12.87	49	Sims Catering Butchers	Unlisted	Canvin Gunner Holdings	15.974

TABLE
C1

Turnover by Security Groups — British Government

● Annually (£m)

	Customer Business					
	Short (0-5 yrs)	Medium (5-15 yrs)	Long (over 15)	Total	Total Bargains	Business Days
*1964	2,718.9	—	2,064.1	4,783.0	112,757	87
1965	10,593.8	—	5,401.8	15,995.6	362,629	255
1966	10,581.4	—	6,025.5	16,606.9	372,203	254
1967	16,524.2	—	11,447.8	27,972.0	450,527	252
1968	14,502.1	—	6,532.5	21,034.6	392,497	257
1969	11,620.5	—	7,839.3	19,459.8	439,780	257
1970	12,940.2	—	14,409.6	27,349.8	476,203	255
1971	22,061.8	—	25,335.4	47,397.2	530,051	253
1972	15,619.4	—	17,124.0	32,743.4	452,277	254
1973	20,859.1	—	14,551.8	35,410.9	471,418	253
1974	20,060.1	—	18,202.3	38,262.4	536,945	255
1975	41,216.2	—	26,027.9	67,244.1	688,998	254
1976	47,510.4	—	34,413.6	81,924.0	768,150	255
1977	78,888.0	—	56,871.1	135,759.1	979,916	252
1978	62,664.1	—	41,014.7	103,678.8	752,060	252
1979	65,457.6	—	63,491.1	128,948.7	878,829	253
1980	75,177.7	—	76,520.5	151,698.2	996,505	254
1981	75,305.4	—	70,750.2	146,055.6	949,487	252
1982	100,000.5	—	103,388.5	203,389.0	1,076,518	253
1983	105,918.1	—	104,837.4	210,755.5	867,298	252
1984	156,587.0	—	112,092.2	268,679.2	849,248	253
1985	124,019.5	—	137,509.5	261,529.0	757,364	253
1986	186,404.2	—	238,010.6	424,414.8	797,092	253

*Figures for 1964 are Sept-Dec. only.
Figures prior to April 1973 are for London Unit only.
Aggregate of purchases and sales.

	Customer Business					Intra	
	Short (0-7 yrs)	Medium (7-15 yrs)	Long (over 15 yrs)	Total	Total Bargains	Short (0-7 yrs)	Medium (7-15 yrs)
1987	190,066.3	153,719.5	230,692.0	574,477.8	720,944	243,765.2	176,473.3

● Quarterly (£m)

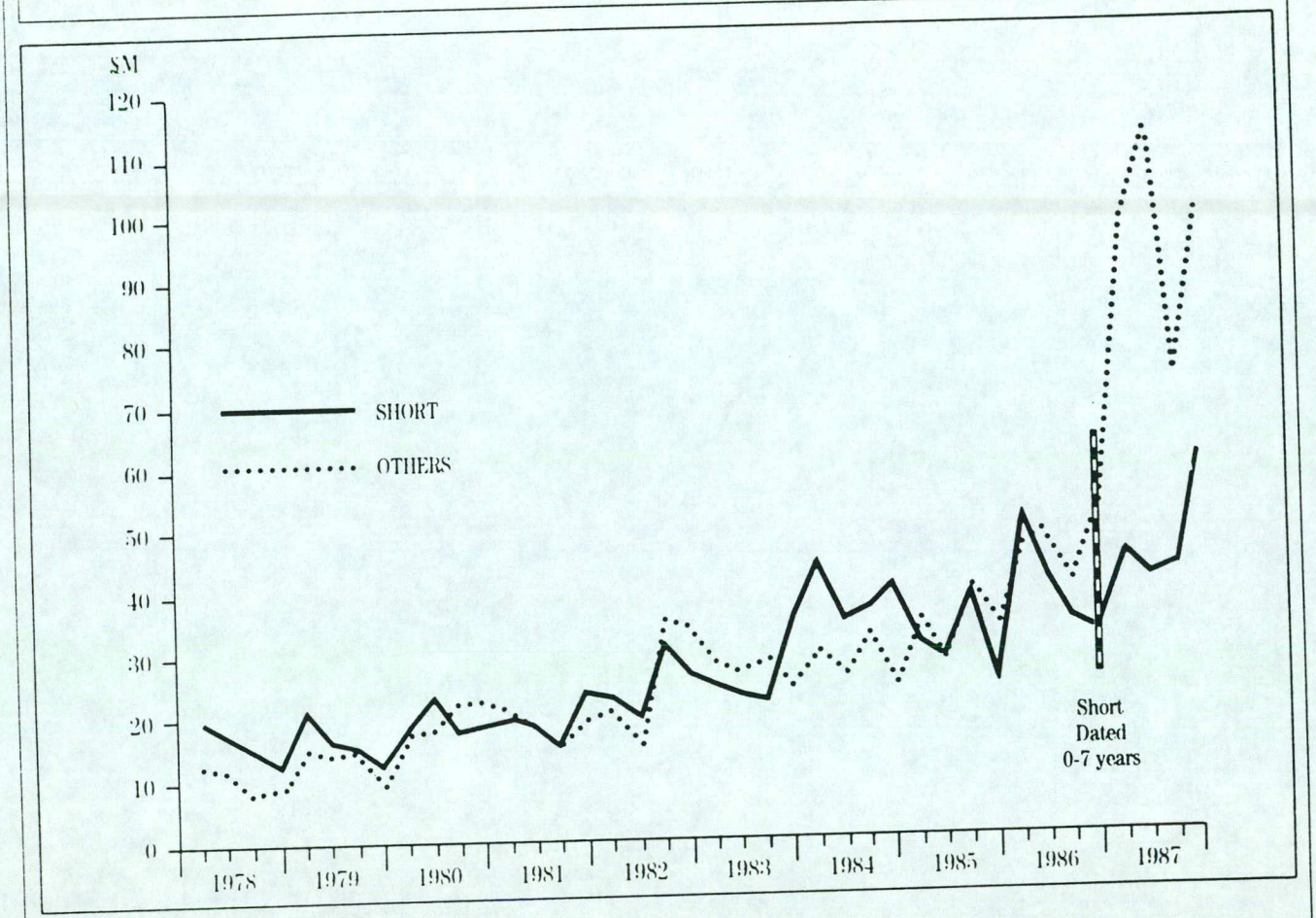
1987							
Jan-March	45,136.1	40,099.7	58,897.4	144,133.2	207,427	65,778.5	45,431.0
Apr-June	40,516.0	39,501.1	72,625.7	152,642.8	191,384	62,527.5	49,047.8
July-Sept	43,614.6	30,074.7	43,705.5	117,394.8	163,106	50,837.5	34,979.0
Oct-Dec	60,799.6	44,044.0	55,463.4	160,307.0	159,027	64,621.7	47,015.5

● Monthly (£m)

1987							
Jan	12,912.1	10,382.1	16,885.4	40,179.6	58,082	18,331.4	12,347.5
Feb	13,424.0	10,173.0	14,549.9	38,146.9	63,863	19,809.4	12,657.5
March	18,800.0	19,544.6	27,462.1	65,806.7	85,482	27,637.7	20,426.0
April	11,551.4	12,124.2	23,084.3	46,759.9	62,913	18,847.6	14,966.5
May	13,559.9	13,069.9	22,512.3	49,142.1	62,981	20,557.5	16,634.4
June	15,404.7	14,307.0	27,029.1	56,740.8	65,490	23,122.4	17,446.9
July	16,324.9	12,573.2	16,428.0	45,326.1	63,255	19,568.3	13,602.9
Aug	13,010.3	8,376.5	12,269.1	33,655.9	47,589	15,184.0	9,835.8
Sept	14,279.4	9,125.0	15,008.4	38,412.8	52,262	16,085.2	11,540.3
Oct	20,322.1	13,621.0	18,599.4	52,542.5	54,970	21,435.8	14,542.3
Nov	23,421.4	17,975.4	24,004.3	65,401.1	59,745	26,180.5	18,956.4
Dec	17,056.1	12,447.6	12,859.7	42,363.4	44,312	17,005.4	13,516.8

Turnover by Security Groups — British Government

TABLE C1 cont.



Market

Long (Over 15 yrs)	Total	Total Bargains	Total Value	Total Bargains	Business Days	
181,135.1	601,373.6	396,731	1,175,851.4	1,117,675	253	1987
						1987
44,485.7	155,695.2	113,909	299,828.4	321,336	63	Jan-March
48,763.6	160,338.9	103,956	312,981.7	295,340	61	Apr-June
40,706.4	126,522.9	84,349	243,917.7	247,455	65	July-Sept
47,179.4	158,816.6	94,517	319,123.6	253,544	64	Oct-Dec
						1987
14,101.2	44,780.1	35,406	84,959.7	93,488	21	Jan
11,739.4	44,206.3	32,892	82,353.2	96,755	20	Feb
18,645.1	66,708.8	45,611	132,515.5	131,093	22	March
16,592.8	50,406.9	34,638	97,166.8	97,551	20	April
14,304.9	51,496.8	33,129	100,638.9	96,110	19	May
17,865.9	58,435.2	36,189	115,176.0	101,679	22	June
15,085.8	48,257.0	30,487	93,583.1	93,742	23	July
11,604.8	36,624.6	25,182	70,280.5	72,771	20	Aug
14,015.8	41,641.3	28,680	80,054.1	80,942	22	Sept
17,180.0	53,158.1	34,040	105,700.6	89,010	22	Oct
19,648.8	64,785.7	36,998	130,186.8	96,743	21	Nov
10,350.6	40,872.8	23,479	83,236.2	67,791	21	Dec

TABLE
C2

Turnover by Security Groups — Ordinary Shares

UK & Irish Companies

	Customer Business			Intra Market		
	Total Customer Value	Shares Traded Millions	Total Customer Bargains	Total Intra Market Value	Shares Traded Millions	Total Intra Market Bargains
1987	283,073.3	133,917.2	11,943,761	237,834.6	n/a	1,613,694
● Quarterly (£m)						
1987						
Jan-March	69,455.1	31,102.4	3,327,711	66,954.9	n/a	442,794
April-June	71,960.1	33,649.2	3,133,817	64,538.1	n/a	407,030
July-Sept	77,092.8	37,160.2	3,122,399	65,705.8	20,254.0	414,250
Oct-Dec	64,565.3	32,005.4	2,359,834	40,635.8	17,121.1	349,620
● Monthly (£m)						
1987						
Jan	20,579.4	9,648.5	905,461	18,783.6	n/a	130,826
Feb	23,872.1	10,227.3	1,144,357	23,493.0	n/a	152,706
March	25,003.6	11,226.6	1,277,893	24,678.3	n/a	159,262
April	19,843.6	9,005.7	917,547	17,560.8	n/a	120,578
May	24,540.2	11,527.2	1,054,869	21,941.5	n/a	130,484
June	27,576.3	13,116.3	1,161,401	25,035.8	n/a	155,968
July	30,761.8	16,760.9	1,380,701	26,516.0	8,250.8	164,188
Aug	21,250.5	10,040.5	887,858	20,553.2	6,450.8	134,068
Sept	25,080.5	10,358.8	853,840	18,636.6	5,552.4	115,994
Oct	29,517.5	12,443.4	1,203,821	21,414.6	6,865.4	153,014
Nov	17,977.5	10,471.1	697,151	9,263.6	6,153.4	107,716
Dec	17,070.3	9,090.9	458,862	9,957.6	4,102.3	88,890

Overseas

	Customer Business			Intra Market		
	Total Customer Value	Shares Traded Millions	Total Customer Bargains	Total Intra Market Value	Shares Traded Millions	Total Intra Market Bargains
1987	103,444.3	16,502.3	1,077,576	6,176.0	n/a	55,186
● Quarterly (£m)						
1987						
Jan-March	21,700.2	3,878.6	308,788	1,434.4	n/a	14,920
April-June	22,514.2	3,895.3	266,425	1,504.0	n/a	13,446
July-Sept	34,061.9	4,866.6	272,199	2,239.8	358.2	16,320
Oct-Dec	25,168.0	3,861.8	230,164	997.8	167.9	10,500
● Monthly (£m)						
1987						
Jan	7,250.6	1,341.3	104,376	403.8	n/a	5,104
Feb	7,176.5	1,235.0	91,855	410.0	n/a	4,030
March	7,273.1	1,302.3	112,557	620.6	n/a	5,786
April	7,466.3	1,395.0	110,516	532.0	n/a	5,236
May	5,280.9	1,238.3	75,804	437.0	n/a	3,822
June	9,767.0	1,262.0	80,105	535.0	n/a	4,388
July	11,212.2	1,960.4	98,058	903.8	138.2	6,278
Aug	11,300.0	1,553.6	92,694	738.2	118.6	5,504
Sept	11,549.7	1,352.6	81,447	597.8	101.4	4,538
Oct	13,272.7	1,747.9	98,783	541.7	82.8	4,914
Nov	6,701.4	1,235.2	78,128	293.5	50.2	3,406
Dec	5,193.9	878.7	53,253	162.6	34.9	2,180

Turnover by Security Groups — Ordinary Shares

TABLE C2 cont.

Total Equity Turnover

	Total Ordinary Value	Shares Traded Millions	Total Ordinary Bargains	Av. Value Per Day (Ord) (£000's)	Av. Value Per Bargain (Ord) (£)	Av. Bargains Per Day (Ord)	USM Value	USM Bargains
*1964	1,297.4	—	1,448,818	14,912	896	16,653		
1965	3,478.6	—	3,417,395	13,642	1,017	13,402		
1966	3,566.0	—	3,118,894	14,039	1,143	12,279		
1967	5,804.0	—	3,890,823	23,031	1,491	15,440		
1968	9,118.3	—	5,313,166	35,480	1,716	20,674		
1969	8,712.8	—	4,539,493	33,902	1,919	17,663		
1970	8,812.6	—	4,097,903	34,560	2,150	16,070		
1971	13,376.8	—	5,258,345	52,873	2,543	20,784		
1972	20,065.7	—	6,724,998	78,999	2,983	26,476		
1973	17,079.1	—	4,954,799	67,506	3,446	19,584		
1974	12,616.0	—	3,935,431	49,474	3,205	15,433		
1975	17,546.5	—	4,768,515	69,081	3,679	18,774		
1976	14,162.9	—	3,566,727	55,541	3,970	13,987		
1977	20,167.9	—	4,434,522	80,030	4,548	17,597		
1978	19,214.6	—	4,129,963	76,249	4,652	16,388		
1979	24,105.9	—	4,111,774	95,280	5,863	16,252		
1980	30,801.4	—	4,230,737	121,265	7,280	16,656		
1981	32,386.7	24,259.6	3,944,495	128,519	8,211	15,653	282.2	64,040
1982	37,414.0	26,379.1	3,883,112	147,881	9,635	15,348	619.6	131,737
1983	56,131.0	35,313.6	4,726,273	222,742	11,876	18,755	1,226.3	266,660
1984	73,119.1	42,162.5	4,848,671	289,008	15,080	19,165	1,469.2	287,243
1985	105,554.3	53,655.0	5,567,798	417,211	18,958	22,007	1,704.5	335,503
1986	181,211.4	77,901.0	7,638,445	716,251	23,723	30,191	2,757.4	414,558
1987	386,517.6	150,419.5	13,021,337	1,523,784	29,683	51,468	6,074.6	925,718

*Figures for 1964 are Sept-Dec. only.
Figures prior to April 1973 are for London Unit only.
Aggregate of purchases and sales.

Unlisted Securites Market

Customer Business			Intra Market			No. of Business Days	
Value	Shares Traded Millions	Bargains	Value	Shares Traded Millions	Bargains		1987
6,074.6	9,613.5	925,718	1,053.4	935.3	40,272	253	
● Quarterly (£m)							1987
1,152.1	2,333.7	201,599	171.7	225.6	10,502	63	Jan-Mar
1,719.3	2,467.1	250,027	289.6	244.3	11,230	61	Apr-June
2,205.8	3,229.0	322,984	463.2	317.8	12,244	65	July-Sept
997.4	1,583.7	151,108	128.9	147.6	6,296	64	Oct-Dec
● Monthly (£m)							1987
272.6	652.1	48,456	40.0	60.8	2,426	21	Jan
365.8	651.8	57,465	50.4	58.2	3,310	20	Feb
513.7	1,029.8	95,678	81.3	106.6	4,766	22	March
542.5	711.4	74,048	69.6	74.6	3,436	20	April
498.2	715.8	73,858	110.4	86.3	3,560	19	May
678.6	1,039.9	102,121	109.6	83.4	4,234	22	June
1,110.8	1,715.4	164,936	296.2	158.4	5,640	23	July
482.7	793.1	88,962	81.0	88.4	3,370	20	Aug
612.3	720.5	69,086	86.0	71.0	3,234	22	Sept
606.2	771.6	86,873	91.5	89.4	3,226	22	Oct
213.9	452.1	42,220	18.1	30.8	1,762	21	Nov
177.3	360.0	22,015	19.3	27.4	1,308	21	Dec

TABLE
C3

Turnover by Security Groups — Other Fixed Interest

	Irish Govt.	UK Local Auth.	Overseas Govt.	Corporate Bonds	Bargains	Business Days
1964*		81.9	65.2	121.5	166,930	87
1965		331.2	201.3	479.7	580,558	255
1966		694.4	138.4	584.8	652,450	254
1967		1,202.5	190.4	787.4	664,757	252
1968		731.3	148.5	943.6	817,535	257
1969		839.4	140.9	1,238.0	808,086	257
1970		1,310.3	136.1	1,158.6	737,868	255
1971		1,521.1	218.3	1,679.5	834,953	253
1972		1,345.2	220.3	2,008.5	809,324	254
1973	299.0	1,117.3	179.9	1,682.8	595,286	253
1974	1,882.5	2,585.5	150.2	1,256.4	548,315	255
1975	3,962.8	3,501.1	223.2	1,558.5	572,875	254
1976	4,460.2	4,264.8	196.8	1,424.5	531,289	255
1977	9,197.1	5,365.2	486.8	2,357.7	670,189	252
1978	9,671.4	4,246.7	274.0	1,683.5	607,806	252
1979	9,523.8	4,378.5	216.6	1,763.3	464,302	253
1980	7,994.3	3,819.6	225.4	1,751.0	480,772	254
1981	6,620.3	3,814.8	315.5	1,473.6	394,340	252
1982	11,535.7	4,115.5	854.4	2,435.8	428,175	253
1983	11,614.1	4,656.1	1,366.8	3,063.3	411,912	252
1984	12,685.8	4,437.1	2,064.1	3,690.4	380,181	253
1985	16,098.5	1,480.0	2,021.7	3,790.9	384,303	253
1986	25,030.8	380.8	7,349.8	7,877.6	412,675	253
1987	23,643.9	190.2	22,712.1	15,851.9	431,450	253

	Irish Govt.	UK Local Auth.	Overseas Govt.	Corporate Bonds	Fixed Interest Bargains	Business Days
1987						
Jan-March	3,694.9	78.0	8,122.2	4,021.3	127,960	63
April-June	7,081.1	42.0	7,591.4	3,467.6	113,682	61
July-Sept	7,270.3	33.2	3,540.0	4,775.2	102,387	65
Oct-Dec	5,597.6	37.0	3,458.5	3,587.8	87,421	64

	Irish Govt.	UK Local Auth.	Overseas Govt.	Corporate Bonds	Bargains	Business Days
1987						
Jan	1,206.6	28.5	2,928.3	1,281.1	40,733	21
Feb	813.1	39.8	2,264.0	1,318.8	38,265	20
March	1,675.2	9.7	2,929.9	1,421.4	48,962	22
April	1,726.3	9.6	2,128.9	961.3	37,439	20
May	2,456.0	21.2	4,371.4	1,229.3	38,507	19
June	2,898.8	11.2	1,091.1	1,277.0	37,736	22
July	2,849.4	9.2	521.7	1,484.4	41,154	23
Aug	1,692.5	11.9	976.0	2,031.9	28,511	20
Sept	2,728.4	12.1	2,042.3	1,258.9	32,722	22
Oct	1,928.0	14.1	2,121.0	1,460.1	32,154	22
Nov	2,201.8	10.0	781.5	1,145.6	29,714	21
Dec	1,467.8	12.9	556.0	982.1	25,553	21

Turnover in UK Fixed Interest and Equities by International Stock Exchange Groups

TABLE C4

SE Group		1987 OCT-DEC (64 days) No of Bargains	1987 OCT-DEC (64 days) Value £m	1987 JAN-DEC (253 days) No of Bargains	1987 JAN-DEC (253 days) Value £m
	COMPANY FIXED INTEREST				
	Debentures and Loans	13,530	1,061.0	92,886	3,926.5
	Convertibles	36,403	1,942.0	163,861	8,689.1
	Preference and Preferred Ords	15,836	326.5	59,846	5,277.3
	TOTAL COMPANY FIXED INTEREST	**65,769**	**3,329.5**	**316,593**	**17,892.9**
	EQUITIES				
12-17	Building Materials	76,400	2,147.5	283,681	9,609.6
18	Contracting & Construction	51,027	861.7	268,177	4,850.6
19	Electricals	22,788	725.7	125,393	2,677.1
35	Electronics	89,546	2,776.3	439,673	13,369.2
20, 22-29	Mechanical engineering	139,775	2,488.9	842,754	13,074.1
21, 32-34	Metals & metal forming	20,157	349.7	113,675	1,731.9
41-43	Motors	51,713	1,107.8	245,673	5,914.9
11, 31	Other industrial materials	49,030	1,311.5	240,004	6,872.9
	CAPITAL GOODS TOTAL	**500,436**	**11,769.1**	**2,559,030**	**58,100.3**
45, 46	Beers, Wines & Spirits	48,329	2,279.7	223,579	9,700.2
49	Food Manufacturers	57,031	2,696.4	275,159	11,772.0
51	Food Retailers	75,253	1,913.0	281,627	8,688.2
67	Health & household products	68,316	3,703.1	277,526	13,054.2
36,47,48	Leisure	79,483	1,976.3	413,351	8,824.7
52, 53	Publishing & Printing	20,575	1,249.2	94,598	5,452.2
54	Packaging & Paper	17,687	628.3	92,547	2,991.9
55-58	Stores	134,018	3,989.1	607,489	18,304.9
37, 59-62	Textiles	53,070	822.3	315,229	4,059.6
	CONSUMER GROUP TOTAL	**553,762**	**19,257.4**	**2,581,105**	**82,847.9**
75	Agencies	38,203	1,557.0	144,615	5,249.7
66, 68	Chemicals	48,109	1,904.7	234,760	7,423.5
73	Conglomerates	54,844	1,772.2	248,394	8,396.5
72	Shipping & Transport	77,320	1,115.5	519,918	5,468.8
88, 98	Telephone Networks	39,423	1,517.7	270,783	6,515.5
38-40, 44, 63-65, 69, 71, 74, 76	Miscellaneous	84,395	2,239.6	448,568	13,466.4
	OTHER GROUPS TOTAL	**342,294**	**10,106.7**	**1,867,038**	**46,520.4**
	TOTAL COMMERCIAL & INDUSTRIAL	**1,396,492**	**41,133.2**	**7,007,173**	**187,468.6**
70	**OILS & GAS**	**266,770**	**9,138.9**	**1,070,128**	**24,484.7**
77, 78, 85	Banks, Discount & Merchant Banks	115,721	2,911.2	739,189	13,862.6
81-83	Insurance	45,478	2,517.0	207,740	11,580.7
86	Property	87,958	2,094.6	470,736	10,588.1
79, 80, 87	Other financial	50,065	895.4	261,870	5,234.5
	FINANCIAL GROUP TOTAL	**299,222**	**8,418.2**	**1,679,535**	**41,265.9**
84	**INVESTMENT TRUSTS**	**53,026**	**1,738.7**	**261,196**	**7,282.5**
91-96	**MINING FINANCE**	**18,903**	**791.7**	**73,799**	**4,453.7**
89, 90, 97	**OVERSEAS TRADERS**	**17,166**	**583.5**	**79,875**	**2,603.3**
	GRAND TOTAL ORDINARY SHARES	**2,051,579**	**61,804.2**	**10,171,706**	**267,558.7**

NOTE: These figures are derived from analysis of bargains reported to the Central Checking Service. In particular the above analysis does not include dealings in overseas registered securities (listed or unlisted) or in unlisted UK securities which are not included in the Stock Exchange classifications.

TABLE C5 Traded Options

	Contracts Traded	Average Daily Contracts	Premium Value £m.
1978	107,564	427	n/a
1979	221,563	876	n/a
1980	253,481	998	n/a
1981	331,489	1,315	59.5
1982	479,805	1,896	82.2
1983	622,697	2,471	132.7
1984	1,120,573	4,429	194.5
1985	2,279,364	9,009	512.7
1986	5,365,533	21,208	1,445.4
1985			
Q1	602,778	9,568	134.7
Q2	413,942	6,786	89.5
Q3	488,691	7,518	112.7
Q4	773,953	12,093	175.9
1986			
Q1	1,110,726	18,386	387.6
Q2	1,035,116	16,430	331.8
Q3	1,183,591	18,209	310.2
Q4	2,036,100	32,319	415.7
1987			
Q1	3,084,586	48,962	891.1
Q2	3,348,740	54,897	950.7
Q3	2,985,141	45,925	878.4
Q4	2,335,705	36,495	796.7

October	Equities	SE Index	Currency	Gilts	Total
Number of Options Listed	57	1	2	3	63
Contracts Traded	1,141,834	108,074	1,184	5,834	1,256,926
Premium value of contracts traded £m	246.0	155.7	0.6	5.6	407.9
Average daily contracts traded	54,373	5,146	56	278	59,853
Open position at end of period (contracts)	927,537	24,442	1,174	9,050	962,203
Value of open position in terms of underlying market equity £m	2,555.4	429.4	26.5	509.8	3,521.1
November					
Number of Options Listed	58	1	2	3	64
Contracts Traded	533,092	43,801	2,601	9,111	588,605
Premium value of contracts traded £m	166.2	59.3	1.5	7.5	234.5
Average daily contracts traded	25,386	2,086	124	434	28,030
Open position at end of period (contracts)	883,450	17,093	1,910	6,093	908,546
Value of open position in terms of underlying market equity £m	2,290.6	268.9	43.8	218.8	2,822.1
December					
Number of Options Listed	59	1	2	4	66
Contracts Traded	452,293	32,732	1,276	3,873	490,174
Premium value of contracts traded £m	128.5	23.0	0.6	2.2	154.3
Average daily contracts traded	21,538	1,559	61	184	23,342
Open position at end of period (contracts)	807,393	12,340	1,070	7,045	827,848
Value of open position in terms of underlying market equity £m	2,169.6	211.5	25.2	396.2	2,802.5

Traded Options
Contracts Traded

TABLE
C6

	Mnemonic	QUARTER ENDING DECEMBER 87 Calls	Puts	Total Contracts	Jan-Dec 1987
Allied-Lyons	ALD	9,157	10,790	19,947	122,269
Amstrad	ATD	14,855	7,135	21,990	110,491
B.A.T. Industries	BAT	24,030	13,511	37,541	197,098
BAA	APT	15,421	10,271	25,692	65,225
BTR	BRT	15,251	9,540	24,791	144,783
Barclays	BBL	7,149	6,393	13,542	74,531
Bass	BSS	3,898	1,538	5,436	25,202
Beecham Group	BHM	18,773	10,834	29,607	137,195
Blue Circle Industries	CIR	15,455	6,035	21,490	70,308
Boots Co	BOT	15,080	14,359	29,439	219,038
British & Commonwealth Holdings	BCO	4,216	1,419	5,635	13,377
British Aerospace	AER	13,396	9,267	22,663	124,121
British Airways	AWS	35,715	21,143	56,858	613,081
British Gas	GAS	71,637	93,589	165,226	1,361,899
British Petroleum Co	BP	64,263	37,105	101,368	305,385
British Telecommunications	BT	39,434	43,903	83,337	715,198
Britoil	OIL	25,668	18,751	44,419	116,347
Cable & Wireless	C&W	19,193	19,557	38,750	207,379
Cadbury Schweppes	CAD	16,124	12,522	28,646	202,324
Commercial Union Assurance	CUA	24,368	17,138	41,506	202,156
Consolidated Gold Fields	CGF	10,066	4,857	14,923	137,798
Courtaulds	CTD	12,666	8,279	20,945	104,476
De Beers Consolidated Mines	DBR	79	14	93	5,096
Dixons Group	DIX	11,708	11,418	23,126	175,237
Dollar(US$) Deutschmark(DM)	YDM	138	0	138	548
Dollar(US$) Sterling($)	YBP	3,739	1,184	4,923	21,616
FTSE 100 Index	SEI	73,320	111,287	184,607	883,637
GKN	GKN	12,781	6,548	19,329	121,573
General Electric Co.	GEC	64,380	55,427	119,807	482,463
Glaxo Holdings	GXO	22,530	15,766	38,296	128,285
Grand Metropolitan	GM	10,348	6,555	16,903	135,404
Guiness	GNS	13,197	19,279	32,476	238,108
Hanson Trust	HSN	119,040	47,456	166,496	752,225
Hawker Siddeley Group	HAW	224	102	326	326
Imperial Chemical Industries	ICI	14,088	13,062	27,150	134,991
Jaguar	JAG	17,750	19,171	36,921	168,918
Ladbroke Group	LDB	12,110	8,561	20,671	87,717
Land Securities	LS	17,715	11,540	29,255	142,697
London & Scottish Marine Oil	LMO	14,549	7,824	22,373	136,133
Lonrho	LNR	29,172	11,221	40,393	168,719
Marks & Spencer	M&S	55,864	31,821	87,685	281,789
Midland Bank	MID	15,885	12,955	28,840	106,438
P & O Steam Navigation Co.	P&O	9,652	6,779	16,431	67,176
Pilkington	PIK	11,545	2,639	14,184	14,184
Plessey Co	PLE	36,519	22,755	59,274	170,476
Prudential Assurance	PRU	2,298	2,556	4,854	12,918
Racal Electronics	RCL	16,312	13,856	30,168	196,071
RTZ Corp'n	RTZ	11,213	11,452	22,665	94,089
Rolls Royce	RR	50,018	30,127	80,145	366,947
Sainsbury (J.)	SAN	761	593	1,354	1,354
Sears	SRS	31,013	31,548	62,561	379,155
Shell Transport & Trading Co.	SHL	5,242	7,967	13,209	112,743
Storehouse	STR	30,080	10,500	40,580	40,580
THORN EMI	THN	18,891	7,603	26,494	106,428
TSB Group	TSB	35,620	23,389	59,009	284,169
Tesco	TCO	10,518	8,666	19,184	76,663
Treasury Con 9½% 2005	CON	2	1	3	3
Treasury Lit 3% 91	TE	7,585	343	7,928	25,036
Treasury 12% 1995	TG	890	282	1,172	1,209
Treasury Lit 3% 07	TY	8,620	1,095	9,715	34,685
Trafalgar House	TRF	20,101	11,523	31,624	89,510
Trusthouse Forte	TFT	29,318	4,592	33,910	124,770
Unilever	ULV	6,246	3,235	9,481	10,239
Vaal Reefs Exploration	VRF	2,790	633	3,423	26,586
Wellcome	WCM	9,333	13,719	23,052	29,973
Woolworth Holdings	WLT	6,135	5,591	11,726	46,607
TOTAL		1,345,134	990,571	2,335,705	11,753,172

TABLE
C7

Turnover in Alpha Stocks

Company		OCTOBER DECEMBER 1987			JANUARY-DECEMBER 1987		
Name of equity	Epic Code	Value ($m)	Bargains	Shares Traded (m)	Value ($m)	Bargains	Shares Traded (m)
Associated British Foods	ABF	74.1	1,374	23.3	466.5	5,379	136.3
Abbey Life****	ABY	131.4	3,514	52.6	320.3	7,564	114.7
Allied-Lyons	ALLD	450.2	7,459	127.0	1,924.0	29,719	497.7
ASDA-MFI Group	ASSD	404.8	7,597	234.2	1,817.4	42,589	1,023.3
Amstrad	ATD	157.9	14,216	118.8	1,021.7	55,024	611.1
Argyll Group	AYL	323.6	7,147	167.7	1,708.6	27,511	522.6
BAA***	BAAP	224.3	41,483	196.9	724.9	146,866	553.6
Barclays	BARC	418.7	10,009	86.0	1,933.0	39,348	357.8
Bass	BASS	312.1	5,474	37.6	1,004.8	24,235	112.9
B.A.T. Industries	BATS	873.6	19,600	181.8	3,212.1	66,360	593.7
British Airways*	BAY	323.7	15,579	201.7	2,141.8	249,133	1,556.1
British Aerospace	BA.	385.9	8,467	111.7	1,666.0	42,941	331.0
Beecham Group	BCHM	557.0	10,467	125.5	2,155.7	40,160	424.5
Blue Circle Industries.	BCI	250.8	5,921	63.2	1,050.8	17,344	189.3
British & Commonwealth Hldgs	BCOM	134.8	3,558	38.9	872.1	14,447	218.2
BET	BET	202.3	5,395	85.3	793.8	21,052	272.1
Beazer (C.H.) (Holdings)*****	BEZR	80.0	2,755	42.0	80.0	2,755	42.0
BICC****	BICC	105.7	1,919	31.8	221.4	4,393	60.2
Burmah Oil****	BMAH	118.3	1,881	27.3	229.8	3,781	46.5
Bunzl	BNZL	128.4	3,104	70.4	585.2	12,597	261.1
BOC Group	BOC	279.4	5,412	73.9	1,148.2	20,383	260.8
Boots Co.	BOOT	346.5	12,774	142.8	1,925.7	55,852	692.4
BPB Industries	BPB	171.6	3,314	61.8	710.2	11,738	161.8
Maxwell Communication Corp'n	BPC	218.1	3,050	91.4	1,053.6	13,243	352.1
British Petroleum Co	BP.	1,464.8	70,005	540.5	4,939.8	130,674	1,256.2
Burton Group	BRTO	415.0	8,395	170.4	1,753.8	36,069	620.9
Britoil	BTOL	2,444.9	33,198	692.0	3,712.9	97,361	1,175.4
BTR	BTR	402.5	10,282	146.4	1,850.7	48,657	596.8
British Telecommunications	BT.A	805.3	20,892	357.6	3,613.7	196,341	1,382.4
Cadbury Schweppes	CBRY	516.3	5,991	225.7	1,481.3	26,125	617.9
Consolidated Goldfields	CGLD	333.7	4,483	34.7	1,961.3	20,838	195.2
Cookson Group	CKSN	199.0	2,972	37.6	763.2	10,318	125.3
Courtaulds	CTLD	267.8	5,804	70.9	1,035.9	22,245	248.8
Commercial Union Assurance Co	CUAC	444.6	6,553	119.5	1,781.9	32,514	513.0
Coates Vyella	CVY	184.8	5,413	67.4	787.8	19,083	190.6
Cable & Wireless	CW.	645.3	18,194	187.5	2,801.0	71,804	724.7
Dalgety****	DALG	98.2	3,303	31.3	316.9	6,209	89.5
Dee Corp'n	DEE	470.1	17,380	249.9	1,593.8	51,444	736.8
Dixons Group	DXNS	278.3	5,569	108.6	1,325.9	23,338	393.9
English China Clays	ECC	161.7	3,135	36.7	626.4	11,157	142.5
Enterprise Oil*****	ETP	104.3	1,682	43.1	104.3	1,682	43.1
Fisons	FISN	372.6	8,236	123.1	1,242.1	24,992	317.0
Ferranti*****	FNTI	197.5	6,632	199.9	197.5	6,632	199.9
Granada Group	GAA	107.7	1,900	38.0	581.8	10,218	178.5
General Acc. Fire & Life Ass.	GACC	141.1	2,207	16.4	658.8	10,787	69.3
Guardian Royal Exchange	GARD	154.1	1,760	17.9	630.2	7,840	68.4
British Gas	GASP	767.4	43,071	548.7	4,220.8	494,565	4,150.3
General Electric Co	GEC	592.1	16,452	319.7	2,864.4	70,652	1,244.0
GKN	GKN	126.2	4,676	42.1	1,033.2	23,888	277.9
Globe Investment Trust	GLOB	88.4	1,780	67.7	257.2	7,699	140.0
Glaxo Holdings	GLXO	1,518.5	25,905	129.2	4,243.3	69,881	317.2
Grand Metropolitan	GMET	509.1	8,862	119.7	1,862.8	34,816	385.4
Guinness	GUIN	444.3	9,101	156.5	2,593.0	57,173	832.3
Great Universal Stores	GUSA	230.3	3,069	19.4	939.0	14,314	55.8
Hillsdown Holdings	HLD	245.0	5,069	92.6	1,201.4	21,601	425.0
Hammerson Prop Inv & Dev Corp	HMSN	81.4	1,023	16.4	390.8	4,249	65.7
Hanson Trust	HNSN	548.9	27,300	411.6	2,974.3	101,635	1,907.8
Hawker Siddeley Group	HSID	148.7	2,470	32.8	853.4	10,609	138.7
Hawley Group*****	HWL	85.2	4,190	83.2	85.2	4,190	83.2
Imperial Chemicals Industries	ICI	1,171.8	27,497	102.0	3,831.9	99,345	304.9

Turnover in Alpha Stocks

TABLE C7 cont.

Company		OCTOBER DECEMBER 1987			JANUARY-DECEMBER 1987		
Name of equity	Epic Code	Value (£m)	Bargains	Shares Traded (m)	Value (£m)	Bargains	Shares Traded (m)
IMI•••••	IMI	64.0	2,162	34.4	64.0	2,162	34.4
Jaguar	JAG	348.7	16,003	100.3	1,612.5	37,705	281.3
Ladbroke Group	LADB	243.5	9,148	71.7	1,259.5	36,181	294.7
Land Securities	LAND	405.5	4,822	87.4	1,592.4	22,052	345.7
Legal & General Group	LGEN	167.7	4,238	57.6	804.4	16,309	251.5
Lloyds Bank	LLOY	260.6	10,856	99.1	1,323.2	34,437	344.2
Laporte Industries (Holdings)•••••	LPRT	58.5	1,139	12.8	58.5	1,139	12.8
Lonrho	LRHO	262.4	6,663	96.3	1,127.1	23,536	364.9
London Scottish & Marine Oil••••	LSMR	80.1	2,244	30.4	223.8	5,061	71.1
Lucas Industries••••	LUCS	162.1	2,767	28.4	354.0	5,596	54.7
Magnets•••••	MAGS	119.6	3,724	59.5	119.6	3,724	59.5
Metal Box••••	MBX	109.0	3,118	55.2	229.3	5,451	101.6
MEPC	MEPC	181.2	1,766	41.5	860.4	10,075	198.9
Midland Bank	MID	467.4	11,041	111.2	1,783.2	39,615	348.8
Marks & Spencer	MKS	509.9	35,632	250.9	1,856.1	110,949	813.5
Northern Foods•••••	NFDS	162.5	2,670	59.1	162.5	2,670	59.1
National Westminster Bank	NWB	537.1	14,284	91.5	2,230.0	53,475	371.1
Next	NXT	214.0	5,044	74.7	1,067.3	22,451	304.6
Pearl Group••••	PEAL	137.2	1,876	33.4	274.3	4,204	64.4
Pilkington	PILK	483.5	22,437	202.9	1,795.9	48,821	463.0
Plessey Co	PLES	425.1	6,997	265.4	2,282.9	26,508	1,009.2
Penninsular & Orient Steam NavPO.	PRT	213.6	6,109	40.4	1,134.5	25,402	177.4
Prudential Corp'n	PSON	276.1	5,758	33.1	1,002.8	21,435	110.7
Pearson	RBOS	227.3	2,628	30.8	1,690.5	11,183	235.1
Royal Bank of Scotland Group	RCAL	142.8	3,136	42.5	552.6	15,286	153.7
Racal Electronics	RCOL	373.8	6,665	153.6	1,644.1	29,095	698.9
Reckitt & Colman	RDLD	126.5	2,527	15.9	701.3	10,224	60.6
Redland	REED	218.6	3,049	51.7	851.0	12,070	179.6
Reed International	RHM	388.4	5,417	92.5	1,570.3	19,640	337.4
Rank Hovis McDougall	RINT	336.1	2,410	101.7	799.7	10,769	238.6
Rothmans International•••••	RMC	246.7	2,263	62.6	246.7	2,263	62.6
RMC Group	RNK	89.7	1,718	20.9	460.4	6,121	79.3
Rank Organisation	ROYL	182.1	2,356	30.6	733.6	9,735	116.0
Royal Insurance	RR.	276.2	4,895	63.2	1,724.8	22,086	282.7
Rolls-Royce••	RTR	463.1	35,114	342.0	1,988.5	250,516	1,495.4
Reuters Holdings	RTZ	323.9	6,951	61.0	944.2	15,370	136.5
RTZ Corp'n	RWNT	303.6	6,852	66.9	2,030.4	28,836	245.2
Rowntree Mackintosh	SAA	116.0	2,268	26.6	762.0	11,040	151.7
Saatchi and Saatchi	SBRY	261.9	4,442	63.7	1,005.4	14,060	169.4
Sainsbury (J)	SCTN	183.9	14,414	80.5	799.6	35,465	223.0
Scottish & Newcastle Breweries	SDWK	145.9	3,234	65.1	535.3	12,906	227.9
Sedgwick Group	SEAR	128.6	3,350	59.7	697.6	15,781	246.5
Sears	SHEL	300.2	8,275	215.8	1,578.0	41,303	1,082.3
Shell Transport & Trading Co	SHS	781.4	13,002	74.0	3,736.2	61,606	319.7
Storehouse	SN.	535.5	8,382	173.9	2,680.7	38,717	759.1
Smith & Nephew Assoc Co's	STAN	149.9	5,103	105.0	677.1	28,753	412.4
Standard Chartered	STC	114.9	3,594	23.0	949.5	10,840	126.7
STC	SUN	342.1	5,299	137.9	1,338.7	27,605	509.4
Sun Alliance & London Ins	TARM	180.0	2,053	19.9	771.9	8,279	90.0
Tarmac	TATE	222.7	11,092	94.7	1,064.8	34,256	311.6
Tate & Lyle•••••	THN	117.1	1,654	16.0	117.1	1,654	16.0
THORN EMI	TNWL	474.7	5,543	84.4	1,607.7	21,204	266.8
T&N••••	TRAF	56.4	2,057	31.0	176.0	4,644	77.1
Trafalgar House	TRST	347.1	5,774	105.4	1,325.4	27,470	363.0
Trusthouse Forte	TSB	336.0	9,077	148.4	1,067.3	30,478	462.9
TSB Group	TSCO	287.0	47,791	242.3	1,044.8	444,916	1,133.8
Tesco	UBIS	248.1	11,095	152.2	1,085.2	31,521	400.7
United Biscuits (Holdings)	ULVR	152.6	3,973	57.0	792.7	17,818	271.4
Unilever	UMAR	329.6	8,641	67.6	1,705.0	31,485	170.7
Ultramar••••		177.9	3,181	78.1	414.2	6,737	162.2

TABLE
C7
cont.

Turnover in Alpha Stocks

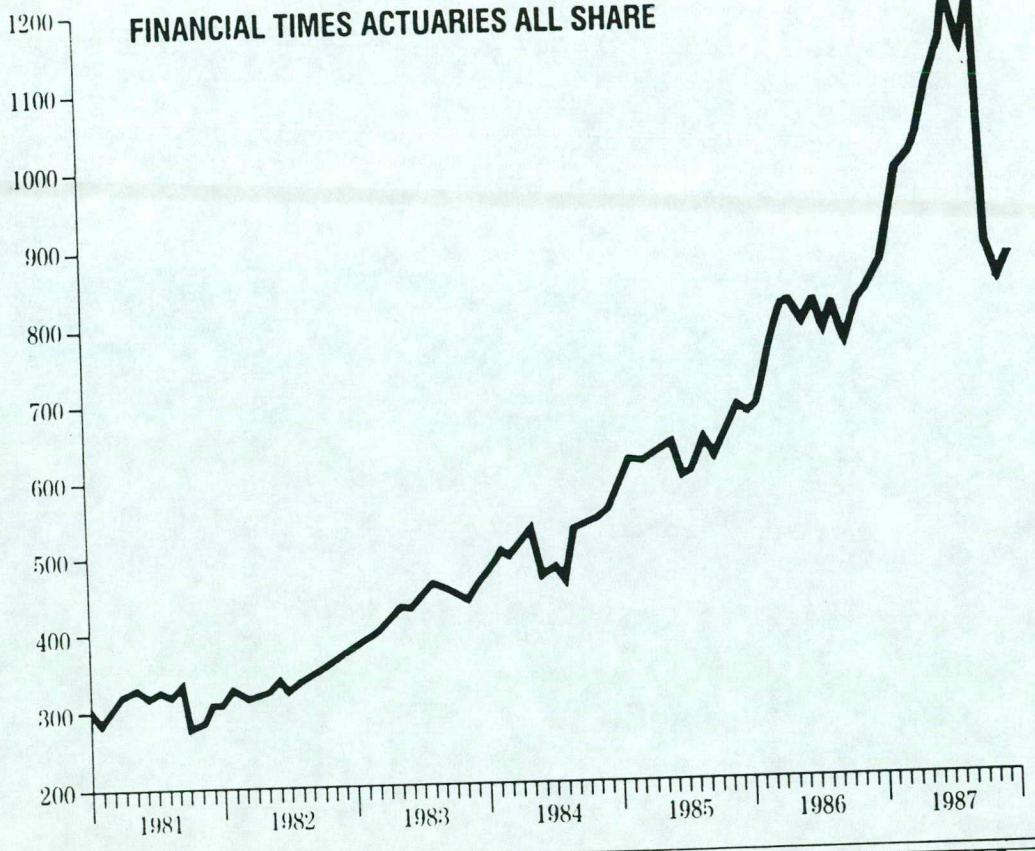
Company

Name of equity	Epic Code	OCTOBER DECEMBER 1987 Value ($m)	Bargains	Shares Traded (m)	JANUARY-DECEMBER 1987 Value ($m)	Bargains	Shares Traded (m)
Unigate	UNIG	164.2	3,393	54.4	687.5	14,360	177.4
United Newspapers****	UNWS	152.3	2,293	31.2	400.3	4,855	75.9
Wellcome	WCM	343.8	9,133	87.1	1,842.7	63,934	473.7
Whitbread & Co	WHIT	180.0	3,357	63.0	792.0	12,691	221.0
Willis Faber	WILF	120.7	2,648	44.0	396.5	7,983	107.6
Woolworth Holdings	WLTH	272.7	5,831	92.6	1,115.3	19,253	247.0
TOTAL ALPHAS		**40,251.9**	**1,102,348**	**13,617.3**	**160,202.6**	**4,919,125**	**49,321.1**

* British Airways values are taken from the start of trading on the market from 11.2.87
** Rolls-Royce values are taken from the start of trading on the market from 20.5.87
*** BAA values are taken from the start of trading on the market from 28.7.87
**** Values from the start of the third quarter only.
***** Values from the start of the fourth quarter only.

Price Indices

TABLE
D1



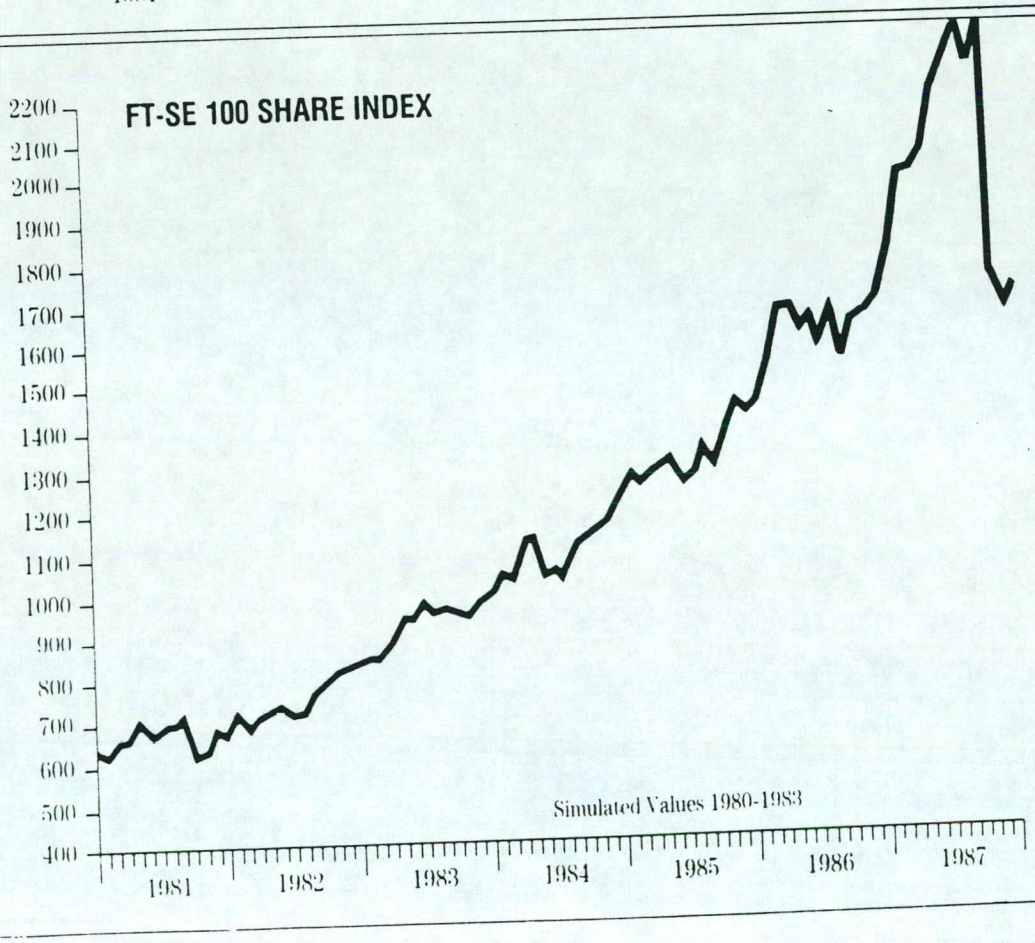
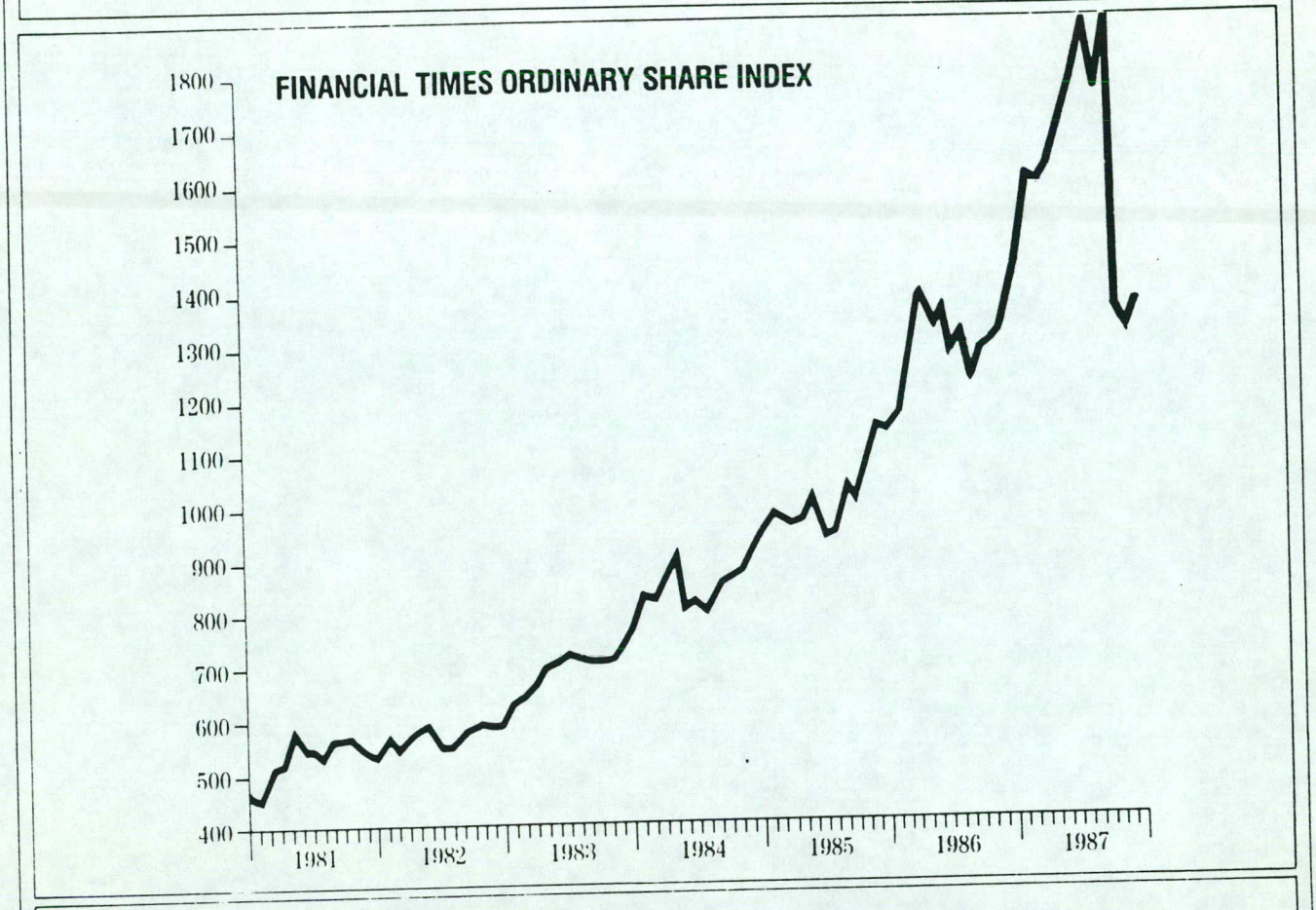
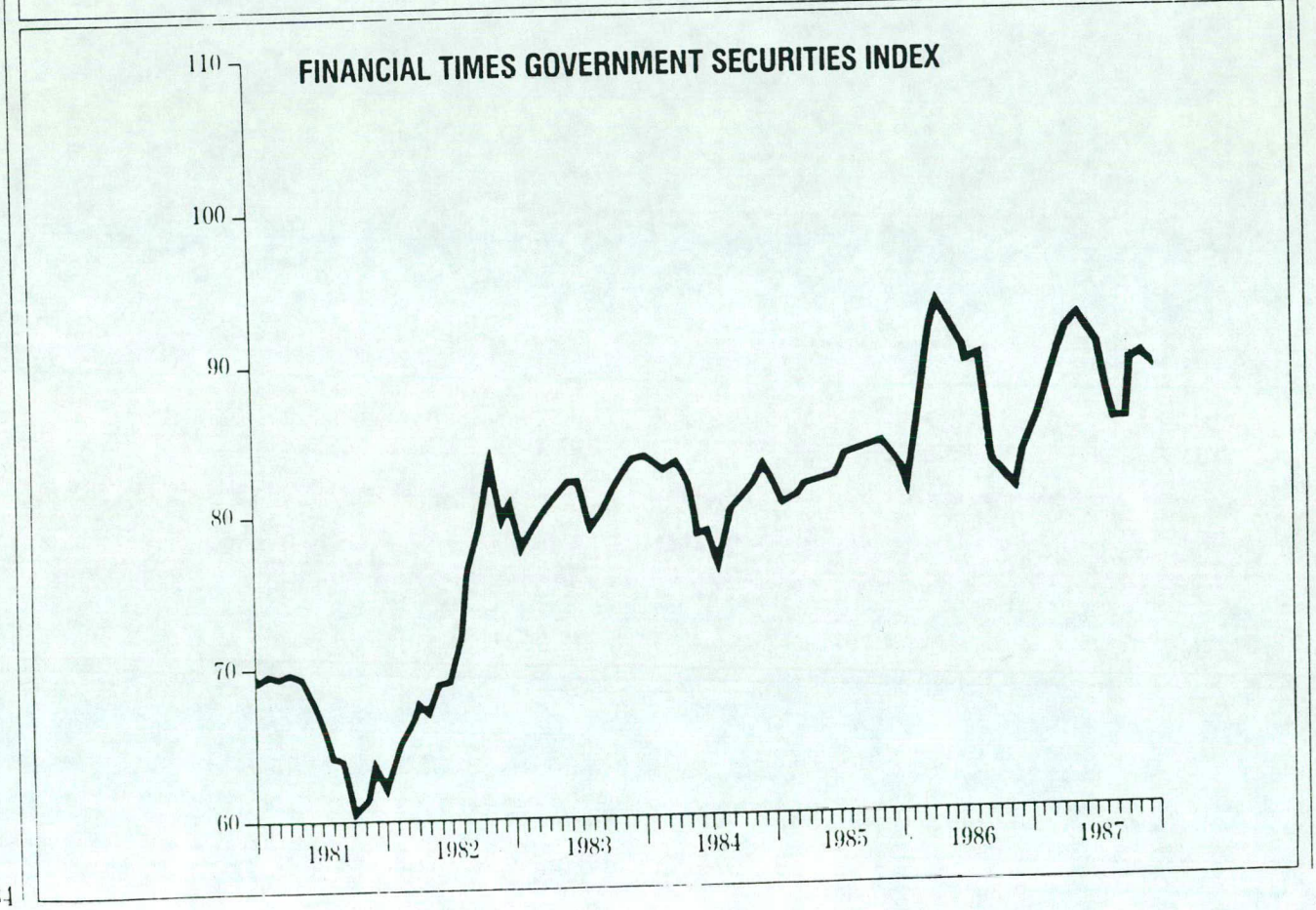


TABLE
D1
cont.

Price Indices





S E C R E T

MG NOON REPORT

FINANCIAL MARKETS — Tuesday 9 February 1988

Previous Close	Opening	10 AM		NOON	Oil Price (11 AM)
74.1	74.0	74.0	£ERI	74.0	
1.7545	1.7450	1.7465	$/£	1.7466	Feb $16.55
2.9765	2.9726	2.9734	DM/£	2.9745	Mar $16.87
1.6965	1.7035	1.7025	DM/$	1.7030	Apr $16.70
128.62	129.20	129.25	Yen/$	129.18	

UK interbank £			Eurodollars	
8	(-1/8)	7 day	6 11/16	(-)
8 7/8	(-3/32)	1 month	6 11/16	(-)
9 7/16	(-1/32)	3 month	6 3/4	(-)
9 13/16	(-1/32)	12 month	7 1/8	(-)

Figures in brackets show change since previous market close

MARKET COMMENT The dollar firmed in New York on some short-covering and on a comment by Haller that "the dollar was at levels that would help reduce the trade deficit".It continued to firm in the Far East on technical factors.In very quiet markets here the dollar has been very steady.Sterling opened softer on reaction to the industrial relations climate but has firmed slightly during the morning.The US,Japanese and Hong Kong equity markets all closed lower on yesterdays levels.The Dow closed at 1895.7(-14.8),the Nikkei closed 23662(-109) and the Hang at 2223.0 (-0.5).The FTSE 100 opened 1700 (+5.5) and is now 1708.8(+14.3). The Gilt market remains nervous.

Ian Polin

MARKET INTERVENTION ($m) — OTHER COUNTRIES INTERVENTION ($m)

Overnight	-
Today so far	-
Total	-

GILTS

	Latest market movements	Price change since previous close
Shorts	Steady	+5/32
Mediums	Steady	+7/32
Longs	Easier	+9/32
Futures (Long Contracts)		+10/32 (VOL:11094)

Gilt Sales since market opening

+£3.2 million
Index-linked.

NAME: I.C.Polin, MG1 Division
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S E C R E T