TESTIMONY PREPARED FOR THE RECORD BY

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THE CHICAGO BOARD OPTIONS EXCHANGE, INC.

BEFORE THE HOUSE OF REPRESENTATIVES SUBCOMMITTEE ON

TELECOMMUNICATIONS AND FINANCE

WASHINGTON, D.C.

DECEMBER 16, 1987

My name is Charles J. Henry. I am President and Chief Operating Officer of The Chicago Board Options Exchange. I appreciate the opportunity to appear before the Committee today.

CBOE pioneered the listing for trading of standardized options on equity securities; it also introduced the first securities option on a stock market-index. Today, CBOE lists for trading stock options on about 177 individual equity securities, market index options on the S&P 100 and S&P 500 stock market indexes, and debt options on U.S. Treasury bonds and notes.

Since their debut in 1983, options on the S&P 100 market index ("OEX") have become the most actively traded options product in the world with over 378 million puts and calls having been traded. The success of OEX and of other stock market index options such as those trading on The American Stock Exchange and The New York Stock Exchange ("NYSE") is evidence of the usefulness of these products to investors in controlling the risk of their stock positions and in adjusting overall exposure to the stock market.

There are two types of options listed for trading--calls and puts. The buyer of a call--an option to buy--tends to profit if stock prices rise; the buyer of a put--an option to sell--tends to profit if stock prices decline. Persons who were long OEX puts going into the week of October 19 got what they paid for--protection against a downward market move. The buyer of a put option knows up front what that downside protection is going to cost. He pays it at the time he opens his option position. It's called a premium and must be paid in full. Performance of the option is guaranteed by the clearing corporation.

An investor seeking to hedge a stock position who bought a November put with an exercise price of 280 when the S&P 100 index was 300, was able to exercise that option on October 19 and receive $6400, one-hundred times the difference between the 280 exercise price and 216, the closing index value on October 19. (That $6400 would not be pure profit of course, it would be reduced by the amount of the premium paid and by transaction costs.) Any person who was long a put option on October 19 profited from the position. Anyone who was short a put option did not. The extent of the loss on the short put position would depend on the premium received from the sale of the put and its exercise price.

On October 19, not only did our option products perform as intended, our market worked well. There were delays in opening our market on October 19 as a result of delayed openings in underlying stocks on NYSE. Overall, however, the 508 point drop of October 19 was handled on CBOE with remarkable orderliness. All of CBOE's systems worked. With few exceptions, orders timely entered were timely filled. Unmatched trades, while more numerous than usual, posed no significant difficulties. The losses suffered by our market-makers and their clearing firms were substantial; however, all of the clearing firms that service market-makers were able to reopen for business on Tuesday.

On Tuesday, October 20, while our systems continued to perform well, the trading day in OEX options was almost entirely consumed by two lengthy trading rotations. As background, it is important to understand that there are numerous option series listed for trading on each underlying security or index value--each with a different exercise price or expiration date. During a trading rotation, trading may occur only in one option series at a time.

Rotations are employed in opening and reopening trading so that all orders present at the trading post in a given series can interact and a single opening price for each series can be arrived at.

On a normal day, it would take approximately 20-30 minutes to complete a trading rotation in all of the OEX option series. On October 20, the opening trading rotation took from 8:30 to 10:54 a.m.; almost 2 1/2 hours. There were two primary reasons for this. First, as a result of the 508 point decline on Monday, an additional 112 option series at lower exercise prices had been added so that the total number of option series subject to the rotation increased from 160 to 272. Second, due among other things to the extreme volatility in index values and the uncertain state of the NYSE market, it was difficult for options market-makers to price the OEX options.

As trading progressed on October 20, unprecedented market volatility gave rise to increasing fear of impending calamity. After the previous day's 508 point drop, the market was up very strongly, with the Dow Jones Industrial Average rising approximately 200 points before reversing itself and plunging 230 points. At the same time, the S&P 500 futures contracts, which opened the day trading at a premium to the cash value of the S&P 500 index, suddenly began trading at unprecedented discounts to the index cash value--discounts four or five times as deep as any previously registered. The futures market became an increasingly important indicator of market sentiment and direction on October 20 due to the decreasing availability of pricing information from the NYSE on the leading large capitalization stocks. By 10:30 a.m., it appeared that large numbers of stocks were subject to formal or informal trading halts on NYSE and rumors abounded of an imminent exchange-wide trading halt on NYSE. At approximately 11:30 a.m. we were informed by the SEC that NYSE would announce an exchange-wide halt within minutes and communicated that to our trading floor.

I review these events, which are described more extensively in an attachment to my written testimony, because it is important for you to realize the sense of fear and pessimism that grew as trading progressed on the morning of October 20. These fears were reflected in the rapid decline of stock prices and in the deterioration of information about those prices. They were also reflected in options prices. A customer who had a market order to buy a put option filled toward the end of the OEX trading rotation was buying into a market vastly different from that which had prevailed early in the rotation. During the 2 1/2 hour period of the rotation, customers were free to cancel orders entirely or to cancel market orders and replace them with limit orders. Many such cancellations were effected. However, those who did not cancel their orders to buy puts may well have found them filled late in the rotation at prices which were extraordinarily high in relation to historical levels.

At 10:54 a.m. on October 20, at the close of the opening rotation, CBOE determined not to commence open trading in OEX. Instead, we determined to halt all trading in OEX. Information as to the status of the various stocks comprising the S&P 100 index was fragmentary and uncertain at the time; however, we believed that stocks representing more than 20% of the index value had in fact ceased to trade and that a trading halt was required under our rules. At 12:22 p.m. we began to reopen trading in OEX pursuant to a rotation procedure. This reopening rotation took approximately two hours, from 12:22 p.m. to 2:23 p.m. Chicago time. During the reopening rotation on the afternoon of October 20, market conditions were markedly different from what they had been at the close of the rotation that morning. The market was rebounding sharply due, among other things, to the Fed's announced determination to act as liquidity supplier of last resort and to announcements of issuer stock repurchase programs. Thus, when customers and firms who bought put options during the morning at prices which they believed to have been excessive sold those options in the afternoon, they realized significant losses. Customers experiencing such losses account for many if not most of the complaints we have received to date regarding this period.

Because more than fifty-five percent of all securities options worldwide are traded on CBOE, we would expect to receive a substantial share of the complaints from customers who lost money during the week of October 19 and, for one reason or another, believe they were unfairly treated. As of December 1, we had received 129 complaints arising out of activity during the week of October 19. Appended to my testimony is an analysis of those complaints. I am aware that other written complaints involving options have been made to North American Securities Administrators Association, this Committee, or the SEC, which have not yet been shared with us. My comments are based on the complaints which we have seen.

Most of the complaints received respecting the week of October 19 relate to the prices at which options orders were filled. More than half of the complaints relate to transactions effected in OEX on the morning of Tuesday, October 20. Very few of the complaints received to date appear on their face to involve sales practice problems--i.e. allegations that a brokerage firm recommended a transaction not suitable for a customer, improperly exercised discretion over a customer's account, or similar matters.

All written complaints received by CBOE are investigated. If the investigation discloses a reasonable basis for concluding that a violation of Exchange rules has occurred, the matter will be forwarded to the Exchange's Business Conduct Committee for possible disciplinary action. Of course, to the extent a customer or firm lost money, disciplinary action typically does not result in compensation. The Exchange provides an arbitration facility, under procedural rules virtually identical to those of the NYSE and The National Association of Securities Dealers, by which members can seek to arbitrate claims against one another and public customers can seek to arbitrate claims against members. All complainants are advised of the availability of arbitration. Following October 19 and 20, the Exchange has received approximately 400 requests for arbitration materials. If past experience is any guide, we would expect these requests to result in the initiation of approximately 100 arbitration proceedings over the next several months.

It's useful to stand back from the specifics a moment to remember the burden that was borne by the market during the five trading days from October 14 through 20. During that period, the Dow Jones Industrial Average dropped 800 points, losing almost one third of its value. Record volumes were experienced throughout the securities markets. Given these extraordinary burdens, our market systems performed extraordinarily well.

This is not to say that we do not see areas in which improvements can be made. It is obvious to us that proliferation of option series has become a serious problem, taxing the capacity of the systems currently in place for publishing information respecting options quotations and transaction prices. CBOE is working with the other options exchanges to develop more flexible policies for adding additional exercise prices. Such policies will enable us to be more selective in adding new option series as prices of underlying securities and indexes change.

Reduction in the number of option series will shorten the length of trading rotations. However, the Exchange is currently evaluating various ways of shortening the rotation procedure, particularly in OEX. We recognize that in volatile markets such as those which existed on October 20, expedition in getting the market open may be more important than achieving a single price opening in each series.

Another thing that is clear from the events of October 19 - 20 is that there must be a quick and reliable system for communicating operational problems and conditions among the stock, futures and options market, as well as their respective regulators.

Finally, you should be aware that the Exchange is actively reviewing margin and net capital requirements applicable to options positions. Although customer margins on short index options positions were increased by all options exchanges as of November 2, we are reviewing the entire customer margin scheme in light of the extreme volatility experienced during the week of October 19. We are also reviewing the current formulas for assessing the risk of positions involving stock, options, and futures for determining compliance with SEC net capital requirements. We expect to be working with the SEC and with the other self-regulatory organizations in developing and implementing necessary changes.

Thank you.

CBOE Chronology:
October 14 - October 27

This report is an account and analysis of the salient features of the CBOE market and the major events shaping that market during the crash of October, 1987. Although the primary focus is on the week of October 19 - 23, the coverage of the report begins prior to October 19, on Wednesday, October 14, and extends through Tuesday, October 27, covering a total of ten trading days. This is done in order to present a more complete picture of the crash as well as for purposes of comparing market dynamics during the crash week with those characteristic of a more typical market environment.

The chronology and analysis provided in this report is arranged on a daily basis and covers the following topics:

(1) An overview of market conditions;
(2) A discussion of significant events in the CBOE market including index rotations, RAES, trading halts and fast markets, systems, and trade processing efficiency;
(3) A summary of outside contacts by CBOE senior staff;
(4) Actions by non-CBOE institutions and individuals that had a significant impact upon the equity market; and
(5) Summary measures of market impact on the capital situation of CBOE member firms and individual market makers.

During the two week period covered by this report the DJIA traded in a range of almost 900 points (more than 35 percent of the total index value of 2508 at the close on October 13). The two broad based stock indices traded on the CBOE, the SPX (S&P 500) and the OEX (S&P 100) had trading ranges of almost 100 points, in each case approximately one third of the total index value at the close on October 13. For this ten day period, the annualized standard deviation (using daily closing index values) exceeded 130 percent for both indices traded on the CBOE. This compares with an annualized standard deviations of 10.2 - 18.3 percent for SPX during the past five years and 11.5 - 20.5 percent for OEX during the same period. OEX, SPX and the Dow all experienced the two largest percentage (and absolute) daily declines (October 19 and 26) and the two largest percentage and absolute daily gains (October 20 and 21) in their history.

Wednesday, October 14

The DJIA had closed with a good gain of almost 37 points on the previous day, climbing back over the 2500 level. Despite a loss of 158 points (including a then record 91.55 point drop on October 6) during the previous week, many believed that an almost 10 percent correction from the August highs had largely run its course. The CBOE seat market reflected continued optimism with a bid of $440,000, only $25,000 below the record price paid on September 29, 1987, and an offer of $525,000. Events on this day did not reinforce this optimism.

The market dropped sharply during the first hour of trading, giving up all of the previous day's gain and then some. By 9:30 A. M. Chicago time,** the DJIA was off about 45 points at the 2465 level. Much of this drop occurred during the opening rotation for SPX and OEX. By the time RAES was turned on (8:49 for SPX and 8:52 for OEX), the DJIA was off about 30 points. The decline was not severe enough to require the Exchange to exercise its discretionary powers to edit RAES for series trading in excess of $10. The furthest in-the-money put (the October 310) was about 8 points above the index during this time. After about 9:30 the market appeared to stabilize in active but orderly trading. For the next two hours the market traded in a very narrow range and by 11:30 had lost only an additional five points, at the 2460 level. The basis on the Dec S&P 500 futures reflected the relatively normal market conditions, remaining at a premium (except briefly at the opening) throughout this period.

Just before noon the market began to fall, once again dropping sharply in a relatively short period of time. By 1:00 P. M. the DJIA was down more than 75 points from the previous day's close. Trading activity picked up and floor officials declared OEX to be in a "fast market" (signalling increased activity) at 1:38, a condition that remained in effect until the close. A weak rally ensued, recovering about 15 points of DJIA's loss. During this rally Timber Hill closed its operation in SPX (2:03 P. M.), removing a major participant from this post. Despite this loss, however, SPX continued to trade actively, doing a total of almost 50,000 contracts for the day. RAES also continued and the Exchange did not find it necessary to remove the by now deep in-the-money 320 October put (SPX closed at 305.23), in part because of continued ability to offset risk by access to the S&P 500 futures. The latter continued to exhibit their customary premium to the cash index except for a brief period at the close. After the failure of the 1:30 rally, the market once again fell, losing an additional 25 points. For the day, the DJIA was down 95.46 points, eclipsing the record set the previous Tuesday, and representing a drop of almost 4 percent.

** All times cited in this report are Chicago time.

Although volume was quite large at 1.3 million contracts, it was considerably below the record of 1.8 million contracts set on September 11, 1986. OEX accounted for two-thirds of total volume, continuing the established pattern. There were no difficulties experienced by the Options Clearing Corporation (OCC) in processing CBOE trades; nor was the level of unmatched trades after the third pass (0.31%) above average. The capital status of CBOE firms and market markers remained extremely strong. Less than 5 percent of market makers had a deficit in their accounts and, across all option exchanges, market maker equity exceeded $842 million, 135 times the total market maker deficit.

Thursday, October 15

Despite the previous day's decline the "correction" was still within the 10 - 12 percent range common during bull markets. One leading analyst predicted that a "selling climax" would soon occur. The market again opened down, falling 15 - 20 points in the first twenty minutes of trading in a follow through from the previous day and dropping below the 2300 level for the first time since late May. OEX opening rotation was completed in 21 minutes and RAES was turned on at 8:56 with the DJIA off about 20 points; SPX RAES was on by 8:50. Over night editing of RAES for both indices had removed puts more than 5 points in-the-money. Following the opening, the market again traded in a brisk but orderly fashion. Floor officials declared OEX to be in a fast market immediately following opening rotation, a condition that remained in effect until 10:38.

After the initial decline, the market rallied sharply, gaining 25 points over the previous close by noon, falling back below 2300 and then rallying to post slight gains at about 1:00. In both cases substantial premiums (as much as 3.25 index points) on the Dec S&P futures contributed to stock buying by program traders. There were 14 fast markets declared in equity option classes by floor officials, reflecting the active trading characteristic of this day. Continued access to a liquid S&P 500 futures market again facilitated trading by CBOE market makers.

Active trading continued and by 2:00 P. M. the market had settled into a narrow range within 5 points of the previous close. Beginning at 2:12 the CBOE's Order Routing System (ORS) was unable to obtain market quote information due to a system malfunction and orders began to queue. RAES was turned off floor wide at 2:31; the market was virtually flat during this period, the DJIA dropping only 2.5 points. ORS printers were unable to route orders beginning at 2:31; although the system was brought up at 2:53, Exchange officials decided not to bring firms back on to ORS before the close because of the sharply changed market conditions (the DJIA dropped 44 points between 2:30 and 2:53). All orders were printed at 3:20 and assigned the effective time of entry price.

At 2:30 P. M. Chemical Bank announced an increase in the prime rate from 9.25 to 9.75 percent, the third increase in the past six weeks. Although no other money center bank followed Chemical's lead, the market response was immediate. The DJIA lost 55 points in the last half hour of trading, with both OEX and SPX declining more than 5 points. Volume surged during this last half hour and floor officials declared OEX in a fast market at 2:51. Heavy trading volume also necessitated a closing OEX rotation at 3:25. For the day, OEX traded more than 1 million contracts, continuing to account for almost two-thirds of total Exchange volume, the NYSE had its first 300 million share day, and SPX set a new volume record of 63,768 contracts. Despite the large volume, OCC trade processing continued to function efficiently, reporting only 0.60 percent of unmatched trades after the third pass. There was some deterioration in OEX exact times but almost 60 percent of OEX trades still met the 15 minute buyer/seller accuracy criterion.

Friday, October 16

Prior to the opening several analysts were interviewed regarding the fate of the five year bull market. The majority view was summarized by the comment that the death of the bull market was "much exaggerated." The 16th was an off cycle expiration involving OEX, SPX, and individual equity options. In response to the increased volatility of recent days, the OEX Committee determined to implement Exchange guidelines governing RAES, allowing removal of any options priced in excess of $10 on an intra-day basis. The large volume of RAES transactions coupled with the increase in premiums resulted in a need to limit the risk exposure of market makers on the system. Despite the volatile markets of the previous days, market maker commitment to RAES remained strong with 411 logged on at the opening on the 16th, typical of participation levels during the previous weeks.

Despite concerns over the sharp declines of the past two days and the uncertain interest rate outlook, the market opened flat, then rallied with the DJIA up about 10 points when SPX RAES was activated at 8:49 A. M. and unchanged when OEX RAES was activated at 9:01. The large number of orders resulted in floor officials declaring OEX to be in a fast market prior to the opening, a condition that remained in effect for the entire day; SPX was declared to be in a fast market at 8:58 but returned to normal market conditions a half hour later.

After the initial rally faded the market lost ground slowly until about 11:15 when the DJIA was off 15 points. The decline then began to accelerate, with the DJIA dropping another 40 points in the next hour and a quarter to the 2300 level. The accompanying fall in OEX led to the removal from RAES of the Nov 290 puts at 11:49 (premiums had reached 12-1/2 by 10:30) and the addition of the Nov 280 puts. Market makers in SPX continued to handle the order flow and did not request the Exchange to implement its discretionary authority to remove RAES series priced in excess of $10.

By 1:30 P. M. a rally attempt had failed and the market continued to sink. Some high priced stocks had experienced substantial price declines with widening bid/ask spreads on the NYSE. In response to market maker requests floor officials waived the maximum bid/ask differential on MRK at 1:30. As the afternoon progressed, the decline became a rout. Floor officials declared fast markets in an additional 9 equity option classes (7 were declared during morning trading), most of which remained in effect to the close. Despite the heavy volume and chaotic market conditions, at least one floor official recorded their approval in each case. By 2:30 P. M. the DJIA was down over 80 points and volume on the NYSE had already surpassed the record set on the previous day. The OEX was falling so rapidly that Exchange officials in consultation with the OEX Committee were forced to reconsider the continued viability of intra-day RAES editing. Between 2:30 and 2:49 all OEX put options were removed from RAES because of prices as high as 22-1/2; calls were retained in an attempt to keep the system functioning for customers. At 2:47, with the DJIA down 118, a floor official declared a fast market condition for SPX. In the closing half hour the DEC S&P 500 basis moved to discounts of as much as 3 index points. The market closed down 108.35 points on the day, a new record. OEX and SPX also experienced record declines of almost 16 points each. OEX entered a closing rotation at 3:20 although ADP was not yet able to provide the final index value; the correct value was provided and verified by 3:49. For the week the DJIA lost over 235 points (9.5 percent) surpassing the record set only one week earlier.

CBOE volume for the day established a new record at 1.98 million contracts. SPX volume also eclipsed the record set on Thursday, trading over 75,000 contracts. Market maker trade time recording accuracy for both index and equity options remained near Thursday's levels, but OCC unmatched trades on the third pass jumped to 2.73 percent. On this day the CBOE seat market first began to reflect the changed market conditions with the bid dropping $63,000 to $377,000; the offer remained at $525,000, however. Both the total amount of market maker deficits and the numbers of market makers with deficits increased substantially over the October 14 base. However, all firms continued in capital compliance and market maker net equity remained substantial.

After the close, the CME announced an increase in margins applicable to the S&P 500 futures effective at the close of business on Monday, October 19. Maintenance margins for both hedgers and speculators were increased from $5000 to $7500 and initial margins for hedgers were increased from $5000 to $7500. The media now began to exhibit increased interest in market events although much of it was focused on the impact of expiration Friday.

Monday, October 19

Over the weekend of October 17 - 18 an increasing amount of attention was focused on both the U. S. and foreign equity markets. The sharp sell-off in New York was beginning to influence markets outside of the U. S. and there was much concern about Tokyo in particular. As U. S. market participants prepared for Monday, the news from Tokyo was not encouraging with the Nikkei falling over 620, its sixth largest one day decline, and London opening sharply lower. One knowledgeable observer predicted a large down day, perhaps as much as 200 points for the U. S. market. On this date senior CBOE officials began telephone conversations with SEC representatives regarding market conditions and the capital situation of CBOE firms. The first of these daily conversations normally occurred prior to the opening of the market and was followed by others during the day. Exchange financial compliance staff also intensified their intra-day communications with member firms to thoroughly monitor the impact of unusual market conditions on firm financial conditions.

In preparation for expected volatile market conditions, CBOE officials in consultation with the OEX Committee and participating market makers again decided to keep RAES functioning through the use of intra-day edits. Market maker commitment to RAES was substantially lessened compared to Friday with only 86 members logged on to OEX RAES. Prior to the opening, a large index option order influx caused both OEX and SPX to be declared in fast markets, a condition that remained in effect the entire day. Senior Exchange officials and floor officials agreed that the maximum bid/ask differential would be waived on an as needed basis during the course of the day in order to maintain markets (this policy continued throughout the week). The maximum bid/ask differential waiver was in effect for OEX during the entire day.

Heavy volume resulted in an extended opening rotation for both OEX and SPX. Opening rotation required 92 minutes to complete in OEX at which point the DJIA was down over 190 points while OEX was off more than 21 and SPX off more than 24 points. Member firms requested a second rotation because of continued high volume and volatile markets; this began immediately following the opening rotation and was completed at 11:36 with the DJIA once again down about 190 points. During the rotation the market rallied more than 80 points (both OEX and SPX moved up about 8 points) and then fell back. SPX began a second rotation (also at the request of member firms) at 9:20. During the rotations all puts were deleted from OEX and SPX RAES because the rapid drop in the index values and the increase in market volatility resulted in an inability to assure put series with less than $10 premiums. RAES was turned on at 11:51 (market down 180 points; OEX off 22 points) with call series only.

Numerous NYSE stocks were delayed on opening and/or had market quotes considerably wider than normal. On the CBOE, 22 individual equity option classes opened on a delayed basis or underwent a second rotation, in most cases because of delayed openings on the NYSE. An additional 6 individual equity option classes were halted during the course of the day. All of the halts were made following confirmation with NYSE and/or AMEX officials that the underlying stock was halted. Heavy volume resulted in declaration of 52 fast markets in equity option classes; because of hectic market conditions the daily log lists one or more floor officials for only 44 of these declarations. Sharp price declines for stocks resulted in numerous equity RAES put edits during the course of day but the system continued to function throughout. Floor officials recorded waivers of the maximum bid/ask differential in four stocks.

One of the most significant impacts on the CBOE markets was the steep discount to cash that quickly emerged on the Dec S&P 500 futures. Except for the mid-morning rally, futures traded at a discount to cash the entire day, on several occasions exceeding 16 index points and closing at a discount of almost 24 index points. The futures bid/ask spread widened from a customary 5 - 10 basis points to 50 - 300 basis points, equivalent to a $250 - $1500 range. The wider quotes on the S&P 500 futures (which reflected unusually wide NYSE markets as well as the general level of uncertainty) hampered the ability of CBOE floor traders to make tight markets in OEX and SPX because of increased costs associated with offsetting index option positions.

By mid morning an informal discussion had begun between exchanges, representatives of elected officials, and regulators concerning the possibility of halting trading on the NYSE. Shortly after 11:15 A. M. SEC Commissioner Ruder told reporters that he had discussed market conditions with John Phelan of the NYSE and that a trading halt had been among the items covered in their conversation. Ruder stressed that such a halt would be "very, very temporary" if the market fell too rapidly (the DJIA was down 100 - 120 points at the time). Forty five minutes later, with the market down 197 points, the SEC announced that no such halt was under consideration. John Phelan announced that the NYSE did not intend to close unless required to do so by the President and the CFTC told reporters that no halt of trading in index futures was under consideration. The halt discussion thus ended without any action taken. Near the close of trading CME President Wm. Brodsky called CBOE President Charles Henry to discuss general market conditions.

Because of the large drop in the market the CBOE added 1724 new series for the opening of trading on Tuesday; ADP informed the CBOE that capacity problems wold prevent these from being available to subscribers. This lack of dissemination to ADP users was not remedied until October 27.

Despite the record shattering drop in the market and the record setting volume on the NYSE, CBOE volume actually declined over the preceding trading days with slightly less than 1 million contracts traded. In addition, the volume composition shifted dramatically, with OEX accounting for less than 40 percent of total volume, in part resulting from the extended rotations. The decline in volume was evident on other securities exchanges but not yet on the CME's S&P futures.

Trade processing efficiency actually improved while exact time market maker recording of trades continued at Friday's levels. Difficulties with outtrades and pricing errors (in large part the result of a 2 digit premium limitation in the Option Price Reporting Authority's (OPRA) message format) severely hampered firm capital computations. Net capital and deficit information compiled by Exchange staff remained incomplete at the opening of the market on October 20. The CBOE seat market began to reflect the possible financial difficulties faced by members. The bid dropped throughout the day, ending at $255,000; the offer also fell to $485,000 although remaining substantially above the previous sale price of $440,000.

Tuesday, October 20

Prior to the opening of U. S. markets on October 20, Asian markets had experienced sharp sell offs. In Tokyo the Nikkei experienced its worse loss ever, falling 3836.43 points or 14.9 percent. Other markets experienced similar sell offs with the exception of Hong Kong which announced that it would close for the remainder of the week. Prior to the opening of the U. S. market, the NYSE asked all firms "to refrain from using the NYSE order delivery system for purposes of executing index arbitrage related transactions after today's opening" including all program trading. Except for the opening half hour of trading, the steep discounts of futures to cash that appeared the previous day continued, at one point amounting to as much as 45 index points. Bid/ask spreads on the futures also remained extremely wide.

On the CBOE the selective waiver of maximum bid/ask differentials remained in effect. Prior to the opening of the market, the CBOE added OEZ series (actually additional OEX strikes designated with this new ticker symbol to accommodate the limits of the OPRA strike price coding system). Market maker participation in OEX RAES was strongly encouraged by Exchange officials and 101 members logged on to the system. On the opening rotation the OBOs initially attempted to open the new series but were unable to obtain market quotes from the crowd. The OBOs then switched to series in which there was established open interest and obtained market quotes. The large number of series resulted in an extremely extended opening rotation of over 2 hours and twenty minutes. At the opening the DJIA gapped up sharply, gaining 100 points over the previous close in less than 30 minutes of trading. The DJIA continued to advance, rising almost 190 points by mid-way through the rotation (9:30); at that point there was a sharp reversal and the market fell 181 points during the remainder of the OEX rotation. OPRA went down for 14 minutes during the opening rotation (9:51 - 10:05) during which time the reported DJIA range was only 20 points.

SPX, which had completed opening rotation, was allowed to enter free trading at 9:20. Although there existed considerable doubt regarding the percentage of the underlying stocks open, Exchange officials believed that the 80 percent level would be reached shortly (the opening rally was only beginning to fade at this time). The decision to enter free trading was made pursuant to Exchange rule 24.13 which allows up to one and a half hours of trading following opening rotation before an index is subject to the 80 percent provision of Exchange rules 24.7.

As the rally faded, quotes for a large number of index component stocks (as well as others) were either suspended or simply ceased to appear on the screen without any explanation. In other cases, orders sent to the NYSE were simply not accepted. Attempts by the CBOE control room to verify halts on individual stocks with the NYSE were unsuccessful although at 10:30 the NYSE Stock Watch responded that halts existed on "50 to 150 stocks" but that it was impossible to verify individual halts. It was further suggested that the absence of a bid/ask indicated a stock halt even if no "ST" designation appeared. Records of trading in the DJIA stocks show ten or more closed down for at least some portion of the 10:00 - 12:00 period (some had never opened).

Senior Exchange officials were also attempting to ascertain the situation at the NYSE and yesterday's discussion of a possible NYSE halt in trading was resurrected. During mid morning Arthur Harris of the NYSE called Chapman, Henry, and Arne Rode (Exchange General Counsel) to elicit information regarding operational conditions at the CBOE. In response to questions, Harris said that he believed 91 NYSE stocks were currently halted but affirmed that information on individual stocks was unavailable. Harris added that all senior NYSE officials were on the floor attempting to decide what course of action to take. The SEC then called to tell Chapman that the NYSE would be closing in "3-4 minutes." The CME's Leo Melamed later reported that Phelan informed him during this period that the NYSE Directors were convening to decide whether to close the Exchange. At approximately 10:41 the AMEX announced that XMI was halting trading, citing their own 80 percent of index components pricing rule. Shortly after these discussions, the CBOE decided to halt index option trading. Henry called Brodsky and relayed the decision to the CME, explaining the 80 percent rule (Exchange Rule 24.7) that was the basis for Exchange action. OEX and SPX halted trading at 10:54 and 10:57, respectively. Representatives of the CME called Nancy Crossman (CBOE Associate General Counsel) seeking additional information on the basis for CBOE's action; she read Rule 24.7 to them. The CME halted trading in the S&P 500 futures 20 minutes later at 11:15. During the trading halt the floor was informed of the SEC's statement that the NYSE would close shortly.

By the early afternoon the market had recovered from its sell off with various index components opening for trading on the NYSE between 11:30 and 12:15. As underlying prices became available the Exchange determined to reopen OEX and SPX; second rotations were complete shortly after 2:20 P. M. with the DJIA up more than 125 points. The second rotation coupled with the trading halt curtailed volume on both indices, with OEX trading less than 300,000 contracts and SPX volume falling to just over 27,000 contracts.

Heavy volume on the NYSE continued to affect trading in equity options. Four posts went off floor broker routing and Floor Officials declared 64 fast equity option markets and 22 halts. Because of difficulty obtaining information from the NYSE, halts were declared for any one of three reasons: lack of a bid/ask, an "ST" designation, or failure of the NYSE to accept orders. Maximum bid/ask differential waivers were recorded in 12 stocks. The difficulties with premiums in excess of $100 that appeared on October 19 continued to cause problems in the capital computations of member firms. Exchange staff aided several firms in performing price and haircut calculations and were able to obtain complete figures through the day's trading. All firms wre able to meet settlements and clearing house margin calls although cash flow on an intra-day basis began to be a problem for some.

Responding to the fears of market collapse the Fed opened the "floodgates of liquidity," and encouraged banks to continue extending credit to securities firms and dealers. Bond prices rose sharply on the news and Chemical, Marine Midland and First Republic of Dallas announced a rescinding of their recent 0.5% increase in the prime rate, returning to the prevailing 9.25 percent. After the close of business, the CME announced a further increase in margins for the S&P futures, effective at the close of business on October 22. Speculative margins were raised to $15,000 initial/$10,000 maintenance and hedge margins to $10,000. The new initial margin requirement for speculators was three times that prevailing less than a week earlier.

Wednesday, October 21

During the evening of October 20 the Japanese Ministry of Finance (MoF) approached the leading Japanese brokerage houses and strongly urged them to help prevent the spreading global panic by actively supporting the market the following day. The Nikkei rose by over 2200 points including a 400 point move in the last half hour of trading, recovering almost half of the combined Monday/Tuesday decline of more than 4400 points.

Despite the Tuesday rally in the U. S. there was still concern about the direction of the market, fueled by the failure of small capitalization issues to participate in the rally. The Fed continued to assure the banking system sufficient liquidity and, although unknown to all except the participants, was already engaged in direct support to one major NYSE firm. The market opened on a hopeful note with Dec S&P 500 futures at a premium to cash; although the futures quickly moved to discounts, these were less than had prevailed on the previous two days. Index arbitrage continued to be limited by the NYSE prohibition on use of DOT for program trading. The DJIA raced up almost 200 points in the first 90 minutes of trading and continued to hold most of these gains for the remainder of the session, spending the rest of the day in a relatively narrow range of 60 points.

Volume was again heavy, although reduced from Monday and Tuesday levels. The large moves and continued volatility had resulted in a proliferation of strikes on the CBOE. The floor was faced with the difficulty of making markets in approximately 4,000 more series (a two-third increase) than was customary. Prior to the opening, CBOE officials determined that, per Exchange Rule 5.4 (Interpretative Statement .05), out-of-the-money strikes without open interest could be delisted. It was also hoped that this would help the overload existing on vendors' dissemination systems which had been further exacerbated by the listing of an additional 1524 series following the Tuesday rally. The impact in this area was limited, however. In fact Quotron notified the Exchange after the close of trading that all May and June 1988 series were being deleted from the system effective the opening of business the following morning. The Exchange continued to make premium information for these series available, but Quotron's capacity problems limited public access to this information.

Market maker participation on OEX RAES decreased somewhat from the previous day with only 83 logged on to RAES. Order influx resulted in floor officials declaring a fast market condition in OEX prior to the opening and for SPX at 9:39. This condition remained in effect for the entire trading day. Opening rotations were again lengthy, lasting more than an hour for both indices. By their completion the market was up more than 160 points. Several of the major index components were delayed in opening on the NYSE including IBM, Exxon, Mobile, AT&T, and Sears, none of which were open by the end of the first half hour of trading. Several other index components experienced trading halts during the morning including GE, Dow, and United Technologies. OEX RAES was turned on at 9:45 with calls only listed.

After the initial hour, trading continued at a heavy pace but in a considerably more orderly manner than on the previous two days. Total CBOE volume was again up from normal levels but less than 1 million contracts. Floor Officials were able to monitor CBOE trading conditions and declared 37 fast markets in equity options during the course of the day but only 1 trading halt was ordered. Three other equity options underwent delayed or second rotations. Following the close of trading market makers and firm representatives initiated a discussion of the pricing that had occurred on the Tuesday OEX opening. In response to these concerns the CBOE Floor Directors determined to establish a panel to review OEX prices on the opening rotation for October 20.

The CBOE seat market also reflected the increased optimism with the bid increasing to $310,000 while the offer remained intact at $485,000. Trade processing functioned more smoothly than on the prior two days although there was still two to three times the normal percentage of unmatched trades after the third pass (1.27%). The media began to evidence considerable confusion over the events of the previous day. Some reports stated that the NYSE remained open despite the closings of all derivative markets; others labeled the NYSE action a selective trading halt.

Thursday, October 22

The two day rally had reversed over 45 percent of the combined Friday/Monday drop of 616 points on the DJIA with the market moving back across the 2000 level. Although still volatile, Wednesday's 25 index point OEX trading range was much reduced from the Monday - Tuesday average of 43.5 points (the DJIA moved in a 200 range on Wednesday compared to 400 points on Tuesday and over 500 on Monday). CBOE added only 92 new series for trading on the 22nd. Despite these outward signs of a return to normality, however, the threat of further collapse remained. In their now routine pre-market telephone conversation, the SEC informed the Exchange that the agency was in conversations with the NY and DC Fed, strongly encouraging the continued provision of sufficient liquidity. There was a prevalent fear that a drying up of liquidity in the banking system could result in a replay of 1929 - 1932. The NYSE continued the prohibition on use of the DOT system for program trading.

Reflecting the fear of a further market decline and ongoing Exchange financial compliance staff concerns, OCC Chairman Wayne Luthringshausen called Chapman prior to the opening of the market to discuss the member firm financial conditions. Luthringshausen was particularly worried about the largest market maker clearing firm.

The market opened sharply down with the DJIA dropping over 100 points in the first half hour of trading; the Dec S&P 500 futures opened at 40 index points discount to cash. So many component stocks were in delayed openings on the NYSE that the OEX rotation was halted at 8:42 due to lack of prices for index calculation although the DJIA value transmitted at the halt was down only 13 from Wednesday's close. OEX opening rotation resumed after 33 minutes (9:15) with the DJIA down 129 and still falling, and was completed at 10:41. During rotation the market rallied more than 100 points and then fell back to be down about 75 points at the completion of rotation. The opening rotation in SPX was halted and resumed simultaneously with that in OEX. Floor officials declared a fast market in OEX prior to the opening which remained in effect the entire day; SPX was in a fast market from 10:30 until 11:30.

Volume on all derivative markets continued the down trend of the previous day and, on the CBOE, the volume shift away from index and into equity options was again apparent. In both instances this was in part a reflection of new restrictions applied by firms to retail customer participation in these markets. Equity option volume accounted for over 60 percent of a total CBOE volume of less than 600,000 contracts. During the course of the trading day there were 39 fast equity option markets declared with at least one floor official recorded in 32 cases. The delayed openings on the NYSE resulted in 27 delayed or equity option second rotations and 5 trading halts. Four of the halts were verified by the CBOE Control Room in conversations with the listing exchange; the fifth halt (an OTC stock) was declared because of extreme width in market quotes for the stock. The CBOE Financial Compliance Department requested a closing rotation for all equity options and this began shortly after the closed of the market. Floor officials approved updating of SPX and OEX quotes after the close of the market.

Chapman and Luthringshausen met with representatives of the Chicago Federal Reserve to discuss the situation. They stressed the need for Fed encouragement of bank support to firms, emphasizing the essential role played by First Options in the Chicago markets and thus the significance of any action taken by Continental. Fed officials responded by stating that they understood the situation and were committed to providing the liquidity sufficient to keep the markets open and the firms solvent.

After a volatile morning the market settled into a 50 point trading range (1920 - 1970) for the remainder of the day and closed down 77.42 points at 1950.43. The Dec S&P 500 futures continued to trade at a discount to cash but at substantially reduced levels from the opening and the discounts exhibited less volatility than on the preceding three trading days. During the afternoon Citibank announced a reduction in the prime rate to 9 percent, a move quickly followed by other major banks including Bankers Trust and First Chicago. The Fed's policy of flooding the financial system was beginning to show effects. Bonds rallied sharply in response to the reduction in prime with long term Treasuries gaining more than two and a half points and yields falling below 9.25 percent. The NYSE also announced early closing hours for the next six business days with other exchanges adopting the same course of action. Volume on the NYSE was down substantially from the preceding three days at 455,000,000 shares.

The CBOE seat market began to reflect the financial distress faced by many members. Seats changed hands at $310,000, $300,000 and $285,000, down substantially from the previous sale of $440,000 on October 16. By the close of business the bid had fallen to $280,000, $160,000 below the offer.

Friday, October 23

Exchange and government officials continued their efforts to respond to market conditions. Richard Ketchum, Director of the SEC Division of Market Regulation, called early in the day to inform the CBOE that the agency had initiated discussions regarding the possibility of raising margins on index options. Unlike the actions taken by the CME and CBOT, margins for securities index options had not been changed during the course of the crash; The Exchange felt its policy was congruent with the Fed's efforts to insure liquidity for the financial system. However, there was substantial concern over the financial exposure of market participants in broad market stock index options. Ketchum told the Exchange that the AMEX was agreeable to an increase in margins and asked for CBOE's thinking. The Exchange agreed and Henry called PHLX and P-Coast while Liebler (AMEX) called the NYSE. All five exchanges agreed to coordinate the margin increase.

After the volatile markets and heavy volume of the previous five trading days, Friday was almost dull. The DJIA moved in a range of 75 points with OEX and SPX each ranging about 8 points. Market maker commitment to OEX RAES declined sharply from the previous day's level with only 34 market makers logged on to OEX RAES and 18 logged on to OEZ RAES. The only puts available on RAES continued to be the November 185 and 190s; RAES contract volume increased by 33 percent over the previous day. Opening rotation was accomplished fairly quickly, completed for OEX at 9:03 and for SPX a few minutes earlier with the DJIA off about 35 points. The S&P 500 cash/futures relationship was quite volatile throughout the day but, except for a short period following the opening, the discounts were reduced from the previous day and in mid morning premiums developed. During the first half hour of trading a Dean Witter modem problem caused queuing on ORS and Dean Witter, along with Merrill Lynch, Pershing, and Paine Webber were switched off ORS from 8:38 to 9:00. The market was relatively flat during this 22 minute period.

Volume on derivative markets again declined with fewer than 42,000 S&P futures trades occurring and total CBOE volume only slightly exceeding 425,000 contracts. NYSE volume was only 288,426,000 shares, the lowest since Wednesday October 14. On the CBOE there were only 5 fast equity option markets declared and 6 delayed or second opening rotations in individual equities. No halts occurred. Trade processing efficiency returned to near normal levels with only 0.59 percent unmatched trades after the third pass and valid time records equal to pre-crash levels.

After the close Luthringshausen called Henry to again express concern regarding firm financial status. Financial data compiled by Exchange staff for the 23rd underline the extent of the capital problem and the importance of Fed action to inject liquidity into the banking system. Although the number of CBOE market makers had declined by only 147 individuals when compared with the October 14 figures, the number in deficit had more than doubled. Across all securities option exchanges the amount of market maker deficits had increased 22 fold and market maker net equity had been reduced by over $250,000,000, about 30 percent of October 14th net equity. Although actual numbers are not available the NYSE specialists had also suffered substantial losses with estimates ranging as high as two-thirds of specialists' capital. The CBOE seat market again underlined the seriousness of the capital situation with a seat sale at $291,000 and the offer falling to $400,000.

Monday, October 26

The net for the crash week was a market decline of over 296 points on the DJIA or 13.2 percent. Other indices experienced similar declines but had, like the Dow, strengthened in the latter part of the week. Monday is, however, on average the weakest day for the market and many analysts wondered whether individual investors would respond to the crash by selling their remaining holdings. The concern was heightened when a leading analyst (who claimed to have anticipated the crash) stated that the market was vulnerable to a further decline, perhaps bottoming in the 1300-1500 level. The market promptly responded by opening almost 80 points below Friday's close and dropping another 20 points during the first half hour of trading.

The anxiety among market participants was reflected by the drop in OEX market makers signed on to RAES: 33 were logged on to OEX and 14 on to OEZ RAES. The opening rotations in both OEX and SPX were once again lengthy. RAES was switched on in OEX at 9:26 and in SPX at 9:22; the indices had declined sharply during the rotation, falling over 11 points from their Friday close. The DJIA was off almost 90 points. In an effort to make RAES of greater use to customers, the November 190 puts were added at 10:18 with the DJIA down 108 points; however the continued decline in the market resulted in the deletion of the 190s at 10:45 under the maximum premium guidelines for RAES options. The DJIA had dropped another 22 points during the time the November 190s were listed on RAES.

NYSE volume returned to the 300,000,000 share plus levels experienced during crash week, forcing 15 stocks to delay opening or enter second rotations and requiring waiver of minimum bid/ask differentials in two stocks due to extreme market width in NYSE quotes. An additional 15 equity option fast markets were declared by floor officials during the course of the trading day and OEX entered a fast market at 9:15, immediately following completion of opening rotation, and remained in this condition throughout the remainder of the abbreviated trading day. Heavy discounts on the Dec S&P 500 futures contract remained in effect, ranging from 2-3 index points during the post opening rally to 7 - 9 points for the remainder of the day. The NYSE continued the prohibition on the use of electronic routing systems for program trading, effectively preventing futures/cash arbitrage. The Dec S&P 500 futures continued to trade at a substantial discount to the cash index, again hampering the ability of CBOE market makers floor to make markets in index options.

Trading remained active on the NYSE and market stabilized throughout most of the morning at the 1830 level; however CBOE volume continued at the reduced levels exhibited during the latter part of the crash week, falling below 500,000 contracts with index options accounting for less than one-third of the total. Other derivative equity products exhibited similar declines; the CME's S&P futures volume was less than half the yearly average of more than 80,000 contracts.

The CBOE seat market continued to reflect the impact of capital loss by floor traders although prices improved over Friday's depressed levels. Two seats were sold at $295,000 and $385,000; however, the sharp drop in the market resulted in a closing bid of only $291,000.

Tuesday, October 27

The recovery of the market on this day after the sharp Monday drop of more than 150 points signaled the end of the crash and the beginning of a return to more normal market conditions. The first indication that the Monday decline did not mean a continuation of the crash came from foreign markets. On the TSE the Nikkei rose more than 632 points from its Monday close while European markets were also strong.

Prior to the opening market makers began returning to OEX RAES with 58 logged on and an additional 20 logged on to OEZ RAES. Calls only were listed on OEX but two out-of-the-money puts, the November 185 and 190 were listed on OEZ. Opening rotation was again a protracted process, requiring more than 45 minutes to complete for OEX and more than one hour for SPX. During the opening rotation the DJIA rose more than 100 points. However, shortly after the completion of the OEX opening rotation the market reversed and began to fall sharply, moving below both the Monday close and the closing low of October 19. Volatility for individual stocks was such that 12 equity options were either delayed in opening or went through second opening rotations. However, unlike the previous week, volume on the NYSE was low enough to allow the CBOE control room to obtain information from the NYSE regarding delayed openings and stock halts. Floor officials were only required to declare one trading halt during the course of the day and 11 fast equity option markets. The CBOE experienced no other unusual market conditions although the Dec S&P 500 futures continued to offer very limited hedging potential with discounts prevailing after the opening rally, reaching as much as 8 index points by mid afternoon.

The CBOE seat market continued to reflect the impact of events during the previous week with three seat sales, all at prices below $300,000. The offer declined to $315,000 while, the bid fell to $265,000. The press began to inquire about the significance of the decline in seat prices and the possible impact of recent events on market maker capital. As the attached chart demonstrates, a substantial decrease in floor capital had in fact occurred over the two weeks of the crash.

Although the market gave up all of its early gains by mid morning, buyers returned quickly, perhaps believing that the widely expected retest of the October 19 lows was occurring. An early afternoon rally followed by a retreat and further rally carried the market to a 52.5 point gain for the day. The S&P 100 and 500 also experienced good gains of 8 and 6 points, respectively. Several analysts commented favorably on the relative lack of volatility represented by the 3 percent move in the DJIA.

CUSTOMER COMPLAINT ANALYSIS
FOR TRADE DATES
OCTOBER 1, 1987 THRU NOVEMBER 6, 1987
(NUMBERS COMPILED BY
DEPARTMENT OF MARKET REGULATION AND DEPARTMENT OF COMPLIANCE
FOR SEC AS-OF DECEMBER 1, 1987)

Number of Written Complaints
Received by Department of Market Regulation: 122

Total 122

Breakdown by Class:
(One letter concerned a request for time and sales for all CBOE listed options for a week. This letter is not reflected in these numbers.)

AEG	1
BMY	1
C	1
CPQ	1
CSC	1
F	2
GE	4
GLW	1
HWP	2
IBM	1
MRK	1
MTC	2
OEX/OEZ	99
RJR	2
SPX	1
TOY	1
TXN	1
UTX	1
WCI	1
WMT	1
XON	2
ZY	1
*Total	128

Breakdown by Specific Trade Date:
(Two letters concerned general pricing relationships for an extended time period. These letters are not reflected in these numbers.)

October 2	1
October 5	1
October 6	1
October 7	1
October 9	1
October 14	1
October 16	4
October 19	19
October 20	79
October 21	14
October 22	4
October 23	3
October 28	4
October 29	3
October 30	2
November 3	1
November 4	1

Breakdown by Type of Complaint:

Pricing	93
Too Long to Execute/Cancel	15
Late Report to Customer	10
Forced Selling Due to Margin Call	3
Lost or Misplaced Order	1
Request for Time and Sales	7
Fading Quotes	4
No Execution But Believe Entitled	8
Conduct on the Floor	1
Firm Accepted Order Which was Obviously Entered in Error	1
Firm did not promptly advise Customer of Change in Execution Price	1
*Total	154

Breakdown by Complainant:

Customer (either from customer or his firm on his behalf)	119
Floor Trader	1
CBOE	2
Total	122

*Totals exceed number of letters received, as some letters allege multiple violations concerning more than one series and trade date.

BJC/mh