Chapter Ten

CLEARANCE AND SETTLEMENT

A. Introduction

During October 1987, trading volume and market volatility reached historic levels. Within a two-week period, New York Stock Exchange ("NYSE") share volume reached peak levels at twice previous records, and volume each day during the period remained at previous record levels. All entities involved in equity trade comparison, clearance and settlement cooperated and succeeded in handling that volume promptly and reasonably efficiently. Trade processing at clearing agencies ran smoothly, although three relatively small clearing members defaulted on settlement obligations. Broker-dealers were under considerable pressure, but settled the majority of their trades with other dealers and customers within the routine five-business-day settlement cycle. During the week of October 26, clearing corporations processed over $100 billion of deliveries among broker-dealers in settlement of exchange and OTC trades. Transfer agents processed record volumes without significant delays, even though certificate withdrawals from depositories reached record levels.

From October 23 through October 30, the exchanges and the National Association of Securities Dealers ("NASD") shortened the trading day by two hours and gradually resumed normal trading hours by November 6. That allowed member firms more time to complete the various tasks associated with settling the record volume of trades. The additional two hours, in particular, allowed member firms more time to input their trades to clearing agencies, review their trade data, resolve uncompared trades and otherwise process hundreds of trades that for a variety of reasons could not be processed in an automatic or automated fashion through central clearing agencies. Moreover, the additional two hours allowed data processors, such as the Securities Industry Automation Corporation ("SIAC"), more time to disseminate closing prices and trade execution reports to members and clearing agencies.

Market volatility also reached historic levels. Volatility had its greatest effect on securities options, particularly options on stock indexes. The Options Clearing Corporation ("OCC"), which collects margin to protect against adverse price movements on short positions, generally was able to protect itself through variation margin calls. Those margin calls were made to OCC clearing members who hold accounts for public customers and for professional traders, market makers and specialists. The concentration of such accounts within a few clearing firms, coupled with the shorter time frame for settling options transactions (next-day) and margin calls (same-day or next-day), caused liquidity problems for clearing members and market makers.

Experience during the recent record market volume and volatility indicates that the principal components of the National Clearance and Settlement System ("National System") -- clearing corporations, depositories, and transfer agents -- performed exceptionally well. Nevertheless, some lessons can be learned. This chapter reviews the performance of the clearance and settlement system during the market break and identifies areas that require further review.

B. Equity Securities - Clearance and Settlement

Clearance and settlement of corporate equity securities trades entail coordinated effort among broker-dealers, exchanges, clearing corporations, depositories, banks and

transfer agents. This section will explore how they functioned in October, including trade comparison and settlement; dealer-customer settlements; clearing agency monitoring of member financial condition; and transfer agent, depository and broker-dealer certificate handling.

1. Trade Comparison, Clearance and Settlement

Overall, the vast majority of equity trades were cleared and settled within the routine five-business-day settlement cycle, and clearing agencies handled potential member defaults well. High volume, however, strained trade comparison and error-trade resolution systems. As discussed below, the October market break highlighted the need for further automation in the trade comparison and resolution process and improved capacity and flexibility in existing systems.

a. Background: The Process of Clearing and Settling Inter-Dealer Trades

Settlement of a stock transaction (i.e., the exchange of money for securities) generally occurs five business days after the date on which the transaction occurred ("trade date"). For example, trading from Monday, October 19, 1987, settled on Monday, October 26, 1987. As a general matter, each customer transaction results in three contracts -- one between brokers and two between the brokers and their customers. The settlement of contracts among brokers often is termed "street-side," and "customer-side" refers to brokers' settlement with customers.

i. Trade Comparison Methods

Trade comparison is the process by which broker-dealers agree on trade terms (e.g., security, number of shares, and price) and confirm existence of a contract that is then scheduled for settlement at clearing agencies. Trade comparison generally is the responsibility of the marketplace where trading occurs, and is performed at the exchange, 1/ through NASD facilities, at a clearing agency on behalf of that marketplace, 2/ or through a combination of those procedures. NYSE, Amex, and OTC

1/ The Midwest Stock Exchange ("MSE"), Pacific Stock Exchange ("PSE"), Philadelphia Stock Exchange ("Phlx") and Boston Stock Exchange ("BSE") match trades on the floor of the exchange. Generally, upon execution of the trade, the party initiating the trade writes a ticket (a buy ticket or sell ticket) denoting, among other things, the firm's name, the issue, the quantity of shares, the price, and the market and signs the ticket. The contra-party to the trade reviews the trade data on the ticket and, if accurate, denotes the firm's name as buyer or seller and signs the ticket. The trade information on the ticket is entered into the exchange's data system. Trades are then reported to the appropriate clearing corporation by the exchange.

2/ The National Securities Clearing Corporation ("NSCC") performs centralized comparison for OTC trades as facilities manager for the national OTC comparison system. Other clearing corporations (i.e., Boston Stock Exchange Clearing Corporation ("BSECC"), Midwest Clearing Corporation ("MCC") and Stock Clearing Corporation of Philadelphia ("SCCP") provide access to NSCC for their members. NSCC was created through a merger of independent clearing

trades are compared through a combination of the two-sided trade comparison process and the automated locked-in comparison process. 3/

Traditionally, nearly all NYSE, Amex and OTC trade comparison was based on two-sided trade input from buying and selling brokers to the clearing agencies. 4/ Comparison starts at the end of the trading day with firms processing and submitting trade data to NSCC by 1:00 p.m. on the day after trade date ("T+1"). Brokers submit trade data using paper blotters, cards, magnetic tapes, diskettes and computer-to-computer transmission to the clearing agency. NSCC processes that data and, on the morning of T+2, issues to each clearing member reports known as contract sheets. Those reports list: (1) compared trades, which have been successfully matched as binding contracts; (2) uncompared trades, i.e., transactions submitted by the member that were not matched; and (3) advisory trades, i.e., transactions submitted by the contra-side against the member that were not matched.

After contract sheets have been distributed, members have until 6:00 p.m. on T+2 to resolve uncompared trades and accept or reject advisory trades through NSCC. 5/ On the morning of T+3 NSCC returns the remaining uncompared trades to members and the marketplace (NYSE, Amex or NASD) for resolution.

Each market has established mechanisms for resolving unmatched trades. Exchange members meet on T+3 at exchange facilities to resolve their differences and submit the necessary additions and deletions to the appropriate exchange and NSCC. Uncompared OTC trades can be resolved through the NASD's Trade Accounting and

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corporations that served NYSE, Amex, and OTC markets. See Securities Exchange Act Release No. 13163 (January 13, 1977), 42 FR 3916. In 1986, NSCC had nearly 400 full settling members, and each day processed nearly 400,000 transactions valued at over $12 billion, which resulted in approximately 77,000 net deliveries.

3/ With two-sided trade comparison, there generally are two "sides" to a transaction or trade. With automated locked-in comparison, there are typically four sides to a transaction. Under the locked-in comparison method, the system or the exchange that operates the system becomes the contra-side to each half of the trade.

4/ The NYSE, Amex and OTC markets continue to process the majority of their trades (by share volume) using the two-sided comparison method. Before 1977, the NYSE, Amex and NASD operated separate comparison systems through wholly-owned subsidiary clearing corporations. With the formation of NSCC, the NYSE, Amex and NASD contracted with NSCC to perform centralized comparison for all three markets.

5/ In the event the member receiving the advisory agrees that the trade is accurate as reported by the other member, the advisory notice can be "stamped" to accept the trade. Depending on the specific comparison system, other mechanisms can be used, at different stages in the processing cycle, to add, revise or delete transactions as necessary.

Reconciliation System ("TARS") 6/ or through clearing agency supplemental trade resolution systems. 7/ Trades matched by the third day after trade date settle automatically on T+5, on a net basis, at the clearing corporation. Trades compared after T+3 generally settle two days after comparison.

As discussed in Chapter Seven, in the past several years an increasing number of transactions in the U.S. securities markets have been executed through automated order routing and trade execution systems. Currently, the NYSE, Amex, NASD, MSE, Phlx and PSE have one or more automated trading systems. 8/ Because these systems capture all of the information necessary to establish a valid contract at the time the trade is executed and in a machine-readable fashion, these systems are considered to "lock-in" the trade and to generate compared trades. Throughout the day, the markets report trade executions to members. Subject to specific limitations, members can correct or delete trades previously reported. 9/ At a specified hour each day, the markets forward to the member's designated clearing agency a report of all trades executed through its automated system. The clearing agency reports those trades to members on the following day (T+1) as trade-date contracts. Members review this report against trading records (frequently this process is automated, because the clearing agency's reports can be received in machine-readable format). If the clearing agency's report is correct with respect to a particular trade, that trade will enter the accounting system in accordance with the clearing member's instructions (many clearing members leave standing instructions for all types of trades).

6/ TARS enables members to resolve uncompared trades through an on-line system that reports compared trades to the clearing agency. TARS allows subscribers electronically to: (1) enter original trade data; (2) review compared, uncompared and advisory trades; (3) enter supplementary trade data to resolve uncompared trades; and (4) review on-line notification of any action taken to resolve unmatched trades. TARS has over 99 participants that account for over 85% of OTC trading. TARS is open to any NASD member that is also a participant in a registered clearing corporation.

7/ For example, if an OTC trade remains unresolved after T+2, a member can submit a "Demand As of," which generates a Demand advisory notice to the contra-side of the trade. If the contra-side does not respond to the Demand advisory notice within three business days, the system will automatically generate a contractual commitment for settlement. Settlement occurs two days after the parties agree to the terms of the trade or after the system generates a contractual commitment. Unresolved uncompared trades thereafter are subject to negotiation and possible arbitration.

8/ Those systems include: NYSE'S DOT; Amex's PER; NASD's CAES and SOES; MSE's Max, PSE's SCOREX; and Phlx's PACE. For a more detailed discussion of automated trade execution systems, see Chapter Seven.

9/ See, e.g., NYSE Rule 123.47. See generally, Chapter Seven.

II. Clearance and Settlement of Compared Trades

Most equity trades clear and settle through the continuous net settlement ("CNS") accounting systems operated by clearing corporations. In those systems, the clearing corporation nets each broker-dealer's settling purchases and sales in each security to arrive at daily net settlement obligations for each broker. Broker-dealers then settle those net obligations with the clearing corporation. The clearing corporation guarantees the settlement obligations of each broker-dealer's counter trading party. Brokers can either settle each day or carry open commitments forward to net against the next day's settlement (hence the continuous nature of CNS). Securities deliveries generally are made automatically between NSCC and its members through credits and debits to their accounts at the Depository Trust Company ("DTC"). Money settlement generally is effected by the exchange of certified checks between NSCC and its members. If brokers elect to carry open commitments forward to the next business day, they must pay or collect the daily change in value, the so-called mark-to-the-market. 10/

b. The October Experience

Because of record volume and volatility during October 1987, trade comparison became a major stress point in the clearance and settlement process. The large volume of trades broker-dealers were required to process, particularly trades that required individual and special attention ("exception processing"), created a major crunch for the securities processing industry. The record market volatility threatened to penalize those firms that could not resolve their errors quickly and before settlement with their customers on T+5. This section reviews that experience, steps taken to resolve uncompared and error trades, and the effectiveness of those efforts.

The NYSE, Amex and OTC markets experienced increased error rates during the market break. 11/ For October 19, the NYSE's normal uncompared rate of 1.6% rose to 3.4%. On October 20, Amex's normal uncompared rate of 2.4% rose to 5.5%, and the normal OTC uncompared rate of 5.7% rose to 12.8%. The uncompared rates for two-sided comparison for the month of October were approximately 9.3% for NYSE trades, 10.8% for Amex trades, and 12% for OTC trades. Further statistical data on each market appears in Tables 10-1 to 10-3.

The following may help to put these numbers in perspective. Assuming the average uncompared trade represented 100 shares at $40 per share, the dollar value of uncompared NYSE trades during the week of October 19 would have been approximately

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10/ Because members with a delivery obligation generally determine the supply of securities in the CNS system and thus, in broad terms, control how many members will receive delivery allocations, clearing agencies also provide mechanisms for members due to receive securities to force delivery from other members ("buy-in" procedures).

11/ Of the total U.S. share volume during the week of October 19, approximately 58.7% occurred on the NYSE, 4.1% on the Amex, and 31.2% in the OTC market. Automated, locked-in systems accounted for 44% of NYSE, 23% of Amex and 1.7% of OTC share volume during the week of October 19. The remaining share volume in each market was compared through two-sided comparison.

$740 million. NYSE member losses could be substantial if a majority of those trades represented customer trades, uncompared trades could not be resolved (requiring the NYSE member to re-enter the market and purchase or sell securities), and the market prices changed significantly during the interim. Assuming a 10% decline in the value of NYSE listed shares, the aggregate dollar value of uncompared trades would decline to approximately $666 million. Without accounting for each member's netting of purchases and sales in the same issue, losses could approach $74 million. Assuming a 40% clearing netting factor, 12/ those losses could approach $44 million.

The record volume during the week of October 19 prevented many firms from transmitting trade input to NSCC by its 1:00 p.m. T+1 cutoff time. Under normal circumstances, firms begin to enter trade data into their systems after the exchange closes. Because of the high number of transactions, some firms reportedly had problems entering all their data in a timely fashion. Other firms reportedly experienced temporary system overloads that prevented timely transmissions by NSCC's deadline. NSCC extended its trade data input cutoff time from 1:00 p.m. to 2:35 p.m. on October 20, to 2:45 p.m. on October 21, 2:30 p.m. on October 22, and 3:00 p.m. on October 23. 13/

Transaction volume and the extension of input deadlines caused late distribution of NSCC contract sheets at 9:30 a.m. on October 21 and at 10:00 a.m. on October 22. 14/ Processing and input delays shortened an already limited time period for uncompared trade resolution. Nevertheless, because extended deadlines permitted more trade sides to be submitted on T+1 rather than on T+2 or T+3, the resulting delays in distributing contract sheets appear to have been appropriate under the circumstances.

1. NYSE October Experience

As set forth in Table 10-1, over 2.3 billion shares were traded on the NYSE during the week of October 19. The average daily share volume (459.9 million) was over 2 1/2 times normal average daily share volume (180.5 million). On October 19, NYSE transaction volume peaked at over 500,000 transactions and on October 20 and 21, NYSE transaction volume was just below 500,000.

12/ The clearing netting factor is designed to account for uncompared purchase orders that can be netted or offset against uncompared sell orders in the same issue. For example, an uncompared purchase of 100 shares of XYZ at $30/share might offset, partially, market exposure on an uncompared sale of XYZ at $40/share.

13/ Even with the extended cutoff time some firms missed the deadline and submitted the additional data the following day (T+2) as corrections (additional trade sides) to data submitted on T+1.

14/ Although contract sheets are scheduled for distribution at 8:00 a.m. on T+2, NSCC usually makes them available to firms between 3:00 a.m and 4:00 a.m. on T+2. It normally takes NSCC approximately six hours to complete the trade comparison process, but on October 21 NSCC required 11 hours and on October 22 NSCC required almost nine hours to complete the trade comparison process.

NYSE's automated execution systems facilitated processing of NYSE trades. During the week of October 19, the NYSE automated execution system ("DOT") processed 44% of the NYSE share volume and 55.5% of NYSE transactions. On October 19, NYSE's DOT processed 305.6 million shares and 307,750 transactions, representing 50.6% of NYSE share volume and approximately 57.7% of transaction volume. 15/

The record number of transactions processed through the DOT system on October 19 put that system under severe operational strain. On October 19, DOT experienced capacity problems in reporting trades to NSCC. Although the trades were executed, the DOT system did not report some executed trade data to NSCC in time to appear on trade date contract sheets. A special program was written to add the trades automatically to the next day's clearance cycle without further effect on timely settlement.

NYSE's odd lot system, the Automated Pricing and Reporting Service ("APARS") suffered reporting delays on October 20 and 21, and system problems on October 20. 16/ On October 20, no member odd-lot trades were reported to NSCC (those trades were reported the next day and were entered into NSCC's clearance systems without further effect on timely settlements). APARS also experienced capacity overload problems on October 20, which caused a computer failure and, in switching over to a backup computer, loss of approximately 8,000 to 9,000 orders. The lost trades were re-established through the NYSE's trade correction process.

During the week of October 19, broker-dealers submitted more than 1.91 million trade sides for initial two-sided comparison representing approximately 56% of share volume and 44.5% of transaction volume. On October 19, however, slightly less than half the NYSE share volume (49.4%) and 42.3% of NYSE transactions were processed by two-sided comparison. 17/ The uncompared rate for the week, as a percentage of trade sides processed by the two-sided comparison system, was 9.7%. For October 19, over

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15/ Including DOT-processed orders, 6.67 million trade sides were processed during the week of October 19. (Each DOT-processed order generates four trade sides.) Of those trade sides, 6.486 million were compared on the first attempt and, thus, were eligible for automatic settlement during the week of October 26. On October 19, the NYSE processed 1,681,740 trade sides; 1,625,114 sides were compared and 56,626 uncompared as of T+2.

16/ APARS handles a number of functions, such as receiving customer orders and pricing data, issuing execution reports to customers and notifying specialists of their positions (when the system reaches certain designated positions set by each specialist the system notifies the specialist). In addition, APARS allows customers to cancel executed orders and those cancellations have priority in the system. See Chapter Seven.

17/ On October 20, the percentage of shares processed through DOT dropped to 40.65% from 50.6% on October 19. As discussed above, processing problems and delays in executing trades through DOT and a reduction in program trading may have contributed to the drop in share volume. For the week of October 12, DOT processed approximately 48.5% of the NYSE share volume.

56,600 trade sides were reported uncompared (12.6%), more than twice the normal rate. For the week of October 19, approximately 184,500 trade sides were reported to NYSE members on T+2 as uncompared. The number of uncompared trade sides, in absolute and relative terms, represented significant increases in potential exposure to NYSE member firms.

ii. OTC October Experience

During the week of October 19, a daily average of 244.4 million shares, and a daily average of 100,000 transactions were executed in the OTC market. OTC share volume exceeded 280 million shares on October 20 and 21, and peaked on October 21 at over 288.1 million shares. Daily OTC transaction volume exceeded 100,000 from October 19-22 and peaked at over 118,250 transactions on October 21. For the week, 1.08 million trade sides were processed, 966,000 were compared and 114,200 (10.6%) were uncompared as of T+2. On October 19 and 20, the OTC market processed a combined total of 458,600 trade sides and of those trades 54,700 were uncompared. The uncompared rates for October 19 and 20 were 12.3% and 11.5%, respectively, more than twice the average OTC uncompared rate of 5.6%.

As noted above, a limited number of OTC transactions are processed through automated execution systems. Approximately 98.3% of OTC share volume and 93.4% of OTC transactions were compared through two-sided comparison systems during the week of October 19.

iii. The October Experience at Other Exchanges

During the week of October 19, over 72.6 million shares a day were traded on the Amex, MSE, PSE, Phlx and BSE. Automated execution systems accounted for approximately 23% of Amex share volume, 29.5% of MSE share volume, 27% of PSE share volume, and 48% of Phlx share volume. With the exception of Amex, these exchanges compare executed trades on the exchange floor. Each of these exchanges experienced an increase in error trades, primarily because of delays in processing orders. 18/ Difficulties appear to have been greatest on the PSE.

During the week of October 19, PSE handled nearly 21,000 transactions and approximately 11 million shares each day: SCOREX volume increased ten-fold. 19/ As discussed in Chapter Seven, the increased order flow caused back-logs, resulting in loss of both order information coming into the system and trade confirmation data coming out of the system. The loss of trade confirmation data resulted in locked-in trades executed though SCOREX not being reported to clearing agencies for clearance and settlement. Using a combination of NSCC, firm and PSE records, PSE staff and PSE member firms worked extended hours over the weekend and during the week of October 26 to reconstruct the lost order and lost trade reports.

18/ For a more complete description of the operational problems with exchange automated systems, see Chapter Seven.

19/ For September 1987, SCOREX's order flow averaged fewer than 25 orders per minute. During peak times on October 19, SCOREX handled 250 orders per minute and executed approximately 47,000 orders that day.

iv. Steps Taken During The Break To Resolve Uncompared Trades

The exchanges, NASD and NSCC took a number of steps during the week of October 19 to resolve unmatched trades. The NYSE required its member firms and specialists to meet after trading and on the weekend, in addition to early morning meetings, to resolve uncompared trades. The NASD operated TARS on Saturday, October 24 from 10:00 a.m. to 6:00 p.m. to resolve unmatched trades. NSCC extended its time periods for members to report the resolution of unmatched trade sides. 20/ Those extensions did not result in significant delays, and indeed, aided the clearing process, because the delays permitted broker-dealers to correct more error trades within the routine settlement cycle. NSCC also was open on Saturday, October 24 to receive reports of compared trades for processing on Monday, October 26.

All of the exchanges and NASDAQ closed trading two hours early from October 23-30 to allow firms to catch up on their back office work and gradually resumed normal trading hours by November 6. 21/ The extra two hours allowed firms to begin processing each day's trade data earlier, to resolve uncompared and error trades, and to accomplish other clearance and settlement tasks (both street-side and customer-side). Extended cutoff times and early market closings particularly helped alleviate the crunch in submitting trade data. For example, by October 26, firms were inputting trade data to NSCC by the normal cutoff time, the first time in over a week.

With the combined efforts of the exchanges, NASD, NSCC and the firms, the uncompared trade problem was brought under control. The exchanges, NASD, NSCC and the firms worked extended and weekend hours in order to resolve uncompared and error trades. For example, this effort resulted in the resolution by NYSE members of approximately 146,500 uncompared and error trades during the week of October 19 and another 27,000 on Monday, October 26. 22/

In the OTC market, the extended TARS hours and the extra evening and weekend hours helped to resolve uncompared trades. For example, a survey of 17 broker-dealers (who accounted for 89% of uncompared trades on October 19 and 93% of uncompared trades on October 20) indicated that as of T+3, those firms resolved, respectively, 81%

20/ Normally, members have until 6:00 p.m. to submit resolved error-trades to NSCC. NSCC extended that deadline on October 19 to 6:30 p.m., on October 20 to 9:00 p.m., on October 21 to 9:30 p.m., on October 22 to 1:00 a.m., on October 23 to 9:15 p.m., and on October 26 to 9:45 p.m.

21/ On October 22, the NYSE announced that the exchange would close two hours early on Friday, October 23, 1987. The other exchanges and NASDAQ also decided to close early.

22/ NYSE members resolved approximately 6,800 trades on October 19, 10,200 on October 20, 17,800 on October 21, 46,200 on October 22 and 41,500 on October 23. Another 24,000 trades were resolved on the following Saturday and Sunday.

and 93% of their October 19 and 20 uncompared trades, which could then be processed on the relevant settlement date. 23/

As a result of successful efforts to clear up uncompared trades, fails to deliver and receive remained close to normal levels. Table 10-7 shows the number and value of CNS fails to deliver and receive at NSCC from October 14 through November 6. The number of fails to deliver (long) and receive (short) did not rise dramatically for trades executed during the week of October 19. As compared to the previous week, fails rose by about 10% to 20%. The total value and average value per item for fails rose by about 40% to 50% in contrast with near triple volume increases. Data from broker-dealers indicates that although the number of fails to receive and deliver increased during October, the firms in general were able to resolve fails with the same or greater success than they did in previous months. Month-end fails to deliver aggregated for 17 firms (from FOCUS Reports) for October 1987 decreased 15.5% in value from September, from $9.5 billion to $8.0 billion. Fails to receive similarly decreased 5.86% from $7.2 billion in September, to $6.8 billion in October. 24/ Similarly, securities loan receivables and securities loan payables for those firms at month-end declined significantly from September to October, indicating that stock borrowing was not increased to meet settlement fails.

c. Customer-Side Settlement

Broker-dealers also settle with their institutional customers on the fifth day after trade date, typically on a delivery versus payment ("DVP" or "COD") basis. 25/ Today, the majority of these customer settlements are processed through the National Institutional Delivery System ("NIDS") at one of three registered securities depositories

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23/ A separate survey of 12 firms conducting a public business confirms the information from the exchanges, NASD and clearing agencies that the vast majority of transactions during the October market break were settled within the normal settlement cycle. According to that survey, those broker-dealers executed 2,070,000 trade sides during the week of October 19 and approximately 1,069,633 of those trade sides were processed through two-sided comparison methods. Those firms had a total of 68,140 uncompared trade sides during the week for an uncompared rate of 6.37%. Those firms worked extended and weekend hours to resolve over 65,268 trade sides by T+5 settlement dates. For October 19-23 trades, only 0.82% of the trade sides remained uncompared by T+5 settlement dates. See Tables 10-4 to 10-6.

24/ See Table 10-8.

25/ COD privileges commonly are extended by broker-dealers to institutional customers. The privileges result from an exception to Regulation T that requires customers to pay for securities within seven business days after the date of purchase. The exception permits payment on delivery within 35 calendar days of a purchase. See 12 CFR 220.8(b)(2)(1986).

(the second type of clearing agency). 26/ NIDS sends trade confirmations to broker-dealers' customers and elicits "affirmations" from those customers. If the customer affirms the trade by the third day after trade date and the deliverer has sufficient securities in his account, settlement generally occurs automatically by book-entry at the depository on T+5. Unlike CNS settlements, each NIDS trade settles on a trade-by-trade or gross basis. If selling customers do not affirm and deliver securities on time (and buyers do not pay for or accept securities), broker-dealers are obligated to pay funds or deliver securities on their behalf. 27/

During the week of October 19, broker-dealers distributed to institutional investors an average of 142,218 trade confirmations a day through NIDS. Generally, broker-dealers submitted that data on the day trades were executed for distribution on T+1. 28/ Agents for institutions affirmed approximately 77,000 trades each day that week and affirmed, by T+3, approximately 85% of the trades broker-dealers confirmed that week ("affirmation rate"), only 4% less than the normal affirmation rate of 89%.

NIDS deliveries for the week of October 26 averaged nearly 65,000 per day and, on October 26, DTC made 81,663 NIDS deliveries, almost 250% above normal levels. For the week of October 19, 89% of all affirmed trades settled on T+5, only 1% less than the 90% rate for October and 2% less than the 1986 average of 91%. For the week of

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26/ DTC acts as the central processor for NIDS, which includes links with the Midwest Securities Trust Company ("MSTC") and the Philadelphia Depository Trust Company ("Philadep"). In 1986, DTC processed over 35 million transactions in NIDS, compared with 9 million in 1982. Today, over 6,500 institutions, banks, and broker-dealers use the NIDS. Broker-dealers, banks and institutions that do not participate directly in depositories access NIDS through correspondent relationships with depository members. DTC estimates that 99% of all institutional transactions (by dollar value) settle by book-entry at depositories. See Securities Exchange Act Release No. 25120 (November 13, 1987), 52 FR 44506.

27/ In 1982, the Commission approved exchange and NASD rule changes that require their members to deny COD privileges to certain institutional customers if those customers do not use depositories. See Securities Exchange Act Release No. 19227 (November 9, 1987), 47 FR 51658. In November 1987, the Commission approved NYSE, NASD, and PSE proposals that, in effect, require all members and customers to use depositories for COD trades. See Securities Exchange Act Release No. 25120 (November 13, 1987), 52 FR 44506.

28/ Fewer than a dozen broker-dealers submitted that data on T+1, rather than trade date; however, that delay does not appear to have affected institutional trade settlement rates significantly, because customers can affirm trades on T+1, T+2, or T+3 without delaying settlement on T+5.

October 19, 77% of trades confirmed settled on T+5, 2% higher than the normal rate, and the October rate, of 75%. 29/

d. Discussion

The experience of the October 1987 record market volume and volatility indicates that automated trade execution systems and same-day, floor-derived compared trades are essential to efficient markets. Without those systems, the securities processing industry during the week of October 19 would have been unable to process the record number of transactions within the normal settlement cycle. Nevertheless, while the securities industry deserves praise for its fast resolution of an unprecedented number of uncompared trades, the Division staff believes that the NYSE and NASD should consider accelerating their efforts, as described below, to generate same-day compared trades, thereby enabling members to know their positions and market exposure before trading commences the next day.

i. Automating NYSE Trade Data Submissions

The NYSE is developing a floor-derived comparison system (termed "FDC") that eventually will enable trade-date comparison of NYSE trades and resolution of errors no later than T+1. In the first phase of that system, which NYSE has begun testing, NYSE will process locked-in trades and report those compared trades directly to members throughout the trading day in an on-line, real-time system. In the second phase, beginning in the first quarter of 1988, NYSE members will begin reporting non-locked-in trades (currently reported to NSCC through two-sided input) directly to NYSE for matching on trade date. 30/ In the third phase, NYSE intends to require members to resolve all uncompared and error trades on the NYSE floor on T+1. The NYSE has indicated that the FDC system, which it expects to make mandatory for all members, will display comparison results during trade date and enable on-line correction and resolution. NYSE intends to complete those phases in stages during 1988.

ii. Expanded Use of Automated Systems For OTC Trades

The NASD recently proposed several initiatives that, if implemented, would increase the number of locked-in, compared trades. The NASD recently proposed to establish the Order Confirmation Transaction ("OCT") service. That service would enhance existing NASDAQ communication facilities to capture, in machine-readable

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29/ Interfaces between clearing agencies reduced the number of inter-city deliveries of stock certificates, checks and related documents. For example, during the week of October 26, banks, broker-dealers and clearing corporations made an average of 19,600 deliveries per day through the depository interfaces. The dollar value of interface deliveries for the week of October 26 averaged $1.34 billion. The number of interface reclaims and rejects averaged 1,241 a day or 5.7% of the deliveries through depository interfaces, well within normal rates.

30/ NYSE plans for members to submit non-locked-in trade data to FDC through direct computer links, data entry terminals at NYSE, and through NYSE's Common Message Switch.

form, all key trade terms. OCT would allow NASDAQ market-makers to communicate electronically with each other for the purpose of comparing on a same-day basis all NASDAQ transactions without the use of telephones, and to report the terms of those trades to clearing agencies for settlement as compared, locked-in trades. 31/

The NASD also proposed by-law amendments designed to increase member use of clearing agency facilities to compare, clear and settle OTC trades that do not result from automated execution services. For example, the NASD proposed to require all NASD members conducting an inter-dealer business in OTC securities to submit trade data to the national OTC comparison service (directly or through an agent). Second, the NASD proposed to require NASD members that participate in clearing agencies to use those facilities to clear and settle their OTC trades. Third, the NASD has proposed to require all NASDAQ/NMS market-makers to use clearing agency facilities for comparison, clearance and settlement of inter-dealer trades. Although these initiatives will not result in locked-in trades on trade date, they will allow NASD members to automate and centralize OTC trade comparison and identify uncompared trades routinely on T+2 instead of several days later. The proposals also will increase activity subject to central netting and monitoring.

2. Clearing Member Fails and Financial Responsibility

The October market break tested clearing agency systems for monitoring member financial condition and managing member default. Three firms defaulted or withdrew from clearing agency membership. As discussed in Section C, OCC assessed its membership for losses from one of those firms (H.B. Shaine). Clearing agencies processing corporate and municipal securities transactions did not suffer significant losses and will cover those projected losses ($395,000) from current or retained earnings. For the first time, however, these clearing agencies were required to contend simultaneously with multiple, actual and potential, member defaults.

Effective safeguards against member defaults are critical to the smooth operation of clearing corporations that provide clearance and settlement facilities for corporate equity transactions (e.g., BSECC, NSCC, MCC, SCCP). The majority of those transactions settle in CNS systems, in which the clearing corporation becomes the buyer to every seller and the seller to every buyer, guaranteeing payment and delivery to all. In order to fund this guarantee, clearing corporations maintain clearing funds based on contributions from members. 32/ Losses from one member's default are first charged against that member's clearing fund contribution and then charged against the clearing corporation's retained earnings or the clearing fund.

Because the equity clearing corporations guarantee trade settlements, they centralize credit judgments, default risks and default administration for traders in the equity securities markets. Accordingly, broker-dealers using exchange or NASDAQ facilities are not dependent on individualized credit judgments concerning counter-party risk for routine trades. Moreover, in the event of member default, clearing corporations

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31/ See File No. SR-NASD-87-54.

32/ Clearing fund contributions traditionally have been calculated as a percentage of the participant's average daily settlement activity (e.g., 2% or 5% of daily settlement debits or credits, averaged monthly).

centralize default administration, offset open positions, liquidate net positions and streamline creditor relations with the defaulting member.

Effective safeguards against member defaults are also critical at other types of clearing agencies (e.g., securities depositories) because those clearing agencies provide central delivery, communication and payment facilities for member banks and broker-dealers. Although depositories do not guarantee member payment obligations in the same way clearing corporations guarantee member delivery and payment obligations in CNS systems, the volume of deliveries effected daily to each member's depository account may require, as a practical matter, similar diligence to credit and member monitoring decisions. For example, perhaps as much as 90% of all institutional corporate equity trade settlements with broker-dealers occur through depository facilities. Supporting those settlements, moreover, is an extensive stock-loan business, deliveries and payments for which occur at securities depositories. 33/ Because most stock loan agreements allow borrowers to return securities on short notice (five days or less) in exchange for collateral (usually cash equal to or greater than the market value of the borrowed securities), rumors concerning a member's solvency can generate hundreds of deliveries and multimillion dollar payment obligations overnight. Because depositories do not guarantee settlement, depositories can (and did) reverse some of those deliveries to reduce a defaulting member's payment obligation and allocate any loss to members who chose to deal with the defaulting member. 34/ Such reversals can have serious consequences for the defaulting member and other members that dealt with the defaulting member (e.g., constricting their cash flow and requiring them to liquidate the borrowed securities, often at a loss). Thus, effective member monitoring and early detection of problem firms help prevent disorderly liquidations of financially troubled firms and related market disruptions.

Each clearing agency has its own safeguards to prevent and handle member defaults. For example, NSCC employs a number of devices to protect against member defaults. First, NSCC maintains membership standards to screen out potentially high-risk members. 35/ Second, NSCC monitors members in various ways to provide early warning of a member posing excessive risk to NSCC. NSCC monitors members' financial and operational condition by examining financial reports, settlement activity, position reports and through communication with other SROs on common members. From those reports, NSCC can project individual member net settlement obligations for the next three days, and in consultation with DTC, identify whether particularly large settlement obligations are agency (rather than proprietary) trades and thus more likely to settle because an institutional customer is prepared to pay funds or deliver securities at DTC. If NSCC perceives that a member poses undue risk to NSCC, NSCC can increase surveillance of that member's activity and can require additional clearing fund deposits,

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33/ For example, during October 1987, a group of 17 firms conducting a public business borrowed securities valued at approximately $34.3 billion and loaned securities valued at approximately $20.3 billion through depositories. See Table 10-8.

34/ Depository rules concerning delivery reversals are designed to protect fully-paid customer securities, as determined by the member's segregation instructions.

35/ Full settling broker-dealer members using NSCC's CNS system must maintain a minimum of $50,000 in excess net capital.

increased mark-to-the-market payments and additional reports. Finally, in the event that a member defaults, NSCC can reverse allocations of securities to the member for which NSCC has not received payment. If necessary, NSCC also can use the member's clearing fund deposit to cover losses resulting from the member's default. Any losses resulting from the liquidation are charged either to NSCC's earnings and profits or, if necessary, to the appropriate clearing fund. The consequence of clearing fund assessment is a pro rata assessment of all members contributing to that fund.

a. Late Payments to Clearing Agencies

As noted above, settlement of stock transactions (i.e., the exchange of money for securities) generally occurs five business days after trade date. Clearing corporations net each member's purchase and sales activity in each security to arrive at a single net money settlement debit or credit for each member each business day. Similarly, depositories net each participant's cash debits and credits associated with securities deliveries. Clearing members settle those net obligations on a daily basis, paying the clearing agency (clearing corporation or depository, as appropriate) by certified check if the net obligation is a debit, and receiving funds from the clearing agency by check if the net obligation is a credit. If a member with a net debit obligation fails to deliver a certified check by settlement time at the end of the business day, the clearing agency may carry the obligation overnight. 36/ In most cases, the member then makes the late payment the next morning by a Fedwire payment. Late settlement payments are violations of clearing agency rules. Thus, under appropriate circumstances, the clearing agency, as an SRO, may discipline the member (e.g., fine, censure or cease to act for that member).

Late settlement payments to clearing agencies during October 1987 were similar to preceding and following months, in terms of frequency and amount. Generally, late payments ranged from $39.75 to $90,000,000. Late payments at all clearing agencies in excess of the member's clearing fund deposit occurred approximately 50 times between October 19-30, 1987. 37/ In each case, however, the clearing agency identified the reason for the late payment, reviewed carefully the member's financial condition, and took what it considered to be appropriate action. 38/ Moreover, as discussed below, only three instances resulted in account liquidations.

36/ If the clearing agency perceives that the member may be in financial difficulty, it will consider, in consultation with the member's designated examining authority, whether to suspend the member and close out its positions.

37/ For each late settlement payment, the clearing agency called the member to find out the reason for the late payment. In most instances, members failed to obtain a certified check or to deliver that check to the clearing agency by settlement time. Those late payments were not due to member financial problems.

38/ The clearing agency may warn the member against making further late payments and also may assess a fine. In addition, if the situation warrants, a clearing corporation may reverse unpaid securities positions from the member's account to its own to cover the unpaid settlement amount. Similarly, as discussed above, a depository will retain its lien for unpaid securities in the member's account and if necessary, sell those securities to cover the late payment.

Late settlement payments typically occurred more frequently with regional participants (i.e., participants outside New York City and Chicago) than with New York City and Chicago participants, because of their different circumstances. For example, at DTC during October 1987, 37 late payments were made by regional participants versus 27 late payments made by New York City participants. New York City and Chicago participants are more frequently members of both the clearing corporation and the depository. As a result, these participants may be able to transfer credits from the clearing corporation to the depository to cover a debit. For example, DTC allows its members who are also NSCC members to apply credits in their NSCC accounts to satisfy their DTC obligations. 39/ That procedure avoids the need in many cases to obtain a certified check when the payment deadline approaches and reduces the frequency of late payments.

In general, regional participants, especially banks, must follow a more time-consuming process in order to deliver a certified check to the clearing agency. The regional participant, upon receiving notice from the clearing agency of its debit settlement amount in its settlement statement, must instruct its clearinghouse bank to pay the clearing agency the debit amount. The participant must then wire funds to the bank, at which time the bank will issue a certified check in the participant's name and deliver it to the clearing agency by the payment cut-off time. During October, late settlement payments by regional participants not caused by financial problems fell into four general categories: (1) participant failure to provide its clearinghouse bank with payment instructions; (2) failure by the bank to make timely payment after receiving instructions; (3) adjustments to the settlement amount made after the clearing agency issued a preliminary payment statement and prior to the payment deadline, but for which the participant could not obtain a certified check to the clearing agency by the payment deadline; and (4) adjustments made after the payment deadline, which generally occur too late in the day for the participant to obtain a certified check from its bank.

b. Clearing Agency Suspensions of Members and Participants

Clearing agencies ceased to act for three clearing members during the week of October 19. DTC and NSCC ceased to act for Metropolitan Securities ("Metropolitan"), American Investors Group ("AIG") and H.B. Shaine & Co. ("Shaine"). OCC ceased to act for Shaine 40/ and the MBS Clearing Corporation ("MBSCC") ceased to act for Metropolitan. The clearing agencies froze assets of those firms, liquidated the accounts, and performed delivery reversals as provided for under their respective rules.

i. Metropolitan

DTC ceased to act for Metropolitan at the close of business on October 20. Metropolitan did not owe DTC money; DTC held $175,000 representing Metropolitan's clearing fund contribution for Metropolitan or its trustee. MBSCC lost no money and returned approximately $1.6 million to Metropolitan or its trustee. NSCC however,

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39/ Through cross-endorsements, a member can deliver to DTC a check it receives from NSCC. Similar procedures exist at MCC/MSTC and SCCP/Philadep.

40/ See discussion, infra, at Section C.

expects Metropolitan's liquidation will cost $395,000 over Metropolitan's clearing fund deposit. 41/

NSCC ceased to act for Metropolitan prior to the opening of business on October 21 because of Metropolitan's failure to meet its settlement obligation on October 20. NSCC effected the liquidation of 166 security positions over the period October 22 through November 3, with a total contract value of approximately $58,438,000 42/ and reversed CNS allocations from Metropolitan's account totalling approximately $5.6 million in value. In accordance with NSCC's instructions and their respective rules and agreements, DTC completed those reversals to the extent securities remained in Metropolitan's DTC account. Although some of those securities were delivered to another DTC participant, NSCC achieved a return of those securities from that member. 43/ NSCC estimates that its loss from Metropolitan's default prior to applying Metropolitan's clearing fund contribution will be approximately $570,000. After applying Metropolitan's $175,000 clearing fund contribution, NSCC expects to suffer a projected loss of $395,000. The loss will be covered by NSCC retained earnings and no assessments to other participants will be made. 44/

MBSCC ceased to act for Metropolitan on October 21 after it learned that Metropolitan failed to meet its settlement obligations to NSCC on October 20, and Metropolitan's representatives failed on the morning of October 21 to provide MBSCC with reasonable assurances of its ability to meet its financial obligations to MBSCC and its participants. As provided for in its rules, MBSCC began to dispose of Metropolitan's open commitments by identifying Metropolitan's open settlement balance order ("SBO") 45/ trades. Metropolitan only had one open unsettled SBO October trade. MBSCC cancelled that trade from the SBO system and the original trade partner (the "contra-side participant") liquidated the trade with another MBSCC participant. MBSCC also closed out Metropolitan's open purchase and sale commitments for November and December. In accordance with MBSCC rules, the contra-side participants received bids

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41/ In light of this experience, the Division believes clearing agencies should consider cross-liens on joint member assets, thereby allowing a clearing agency to pay over to another clearing agency the balance of a joint defaulting member's clearing fund deposit, if any, after satisfaction of losses at the first clearing agency.

42/ Equity position liquidations ranged from 100 shares to 87,200 shares and debt security position liquidations ranged from $3,000 to $670,000 in par value. The contract value of no single position exceeded 15% of the total contract value liquidated.

43/ Metropolitan received those securities, in accordance with NSCC's rules, subject to a constructive trust.

44/ NSCC had retained earnings of $7,900,000 as of December 31, 1986. As of the same date, DTC had $12,141,000, MCC had $3,343,803, and MSTC had $2,681,615 in retained earnings.

45/ The SBO system is an MBSCC Clearing Division trade recording and accounting system. Participant transactions in a given class of securities are netted, based upon current market value. This reduces the settlement obligations to one net credit or debit amount for each class of securities for each participant.

and in both cases chose to match the highest bid, resulting in a cumulative gain of $402,255. Under MBSCC rules, that amount is payable to MBSCC. Thus, MBSCC suffered no losses in connection with closing Metropolitan's accounts. MBSCC refunded Metropolitan's participant fund deposit (approximately $762,000 plus interest, less $4,500 in fees and charges owed to MBSCC), as well as the $402,265 profit on the liquidations of the November and December open trades.

II. Shaine

NSCC and OCC 46/ ceased to act for Shaine before the opening of business on October 20. Shaine did not default on its settlement obligation to NSCC. Nevertheless, NSCC reversed positions valued at a total of $28,971 from the DTC account of Shaine to NSCC's control account at DTC, reflecting CNS delivery allocations made to Shaine earlier that day. NSCC effected the liquidation of 173 securities positions over the period October 26 through December 1, with a total contract value of $1,757,000.47/ NSCC was not required to appropriate any of Shaine's clearing fund contribution ($30,000). NSCC expects to pay approximately $198,500 to the Shaine representative.

DTC ceased to act for Shaine before the opening of business on October 20. On that day DTC reversed two deliveries, leaving Shaine in a net flat position with DTC. DTC did not apply Shaine's participant fund contribution ($10,000) nor did it suffer a loss as a result of ceasing to act for Shaine.

III. AIG

AIG ceased operations on October 20. DTC ceased to act for AIG on that day. AIG was left with a settlement obligation to DTC of approximately $22,000, which it has not paid at the time of this writing. Because AIG's participant fund contribution is approximately $400,000, however, DTC does not expect to suffer a loss. AIG also participated in NSCC, primarily to use NSCC's Envelope Settlement Service ("ESS"). 48/ Accordingly, NSCC deleted AIG from its list of members on that day. On October 20, AIG was in a credit position with NSCC.

46/ OCC's loss on liquidating Shaine's positions exceeded $8 million. See, infra, at Section C.

47/ Equity positions liquidated ranged from 5 shares to 8,000 shares and debt security position liquidations ranged from $1,000 to $80,000 in par value. The contract value of no single position exceeded 15% of the total contract value liquidated.

48/ NSCC's ESS allows a member to deliver securities to another member against payment via an envelope containing such securities (payments are netted with CNS and other activity for settlement at the end-of-day). Envelopes are delivered to NSCC, which sorts them and then makes them available for pick-up by representatives of members to whom the envelopes are addressed. NSCC does not examine the contents of envelopes nor does it guarantee those contents.

c. Clearing Agency Communication

The unprecedented trading volume and volatility during the week of October 19 required clearing agencies to monitor closely their members' financial positions. Because each of the firms that failed was a member of two or more clearing agencies, it was essential that each clearing agency communicate with other interested SROs and clearing agencies concerning those members' financial condition.

Improved clearing agency and SRO communications resulted, in part, from contingency planning by the Monitoring Coordination Group ("MCG"). MCG was formed in 1984 following the Division of Market Regulation's 1984 Securities Processing Roundtable, 49/ with representatives from the Amex, CBOE, DTC, MSE/MCC/MSTC, NASD, NSCC, NYSE, OCC, Phlx/SCCP/Philadep and PSE. MCG established formal procedures for communication among clearing corporations, depositories or other self-regulatory designated examining authorities ("DEA") 50/ whenever a common clearing member's financial condition threatens the financial or operational condition of member firms, clearing agencies or marketplaces. Under the established protocol, whenever a clearing agency or SRO has reason to believe that a member firm is experiencing financial or operational difficulties, that organization must advise the DEA for that firm, which will investigate and, if appropriate, will notify other relevant MCG entities of the situation and its recommendations and conclusions. Thereafter, each involved MCG entity is to be apprised continually of the member firm's status.

Clearing agency monitoring and information coordination during the week of October 19 generally were conducted in accordance with MCG procedures. In the case of failed and other closely-watched firms, each clearing agency was informed of possible and actual financial problems of its multimember participants and was able to act quickly when necessary. For example, OCC, NYSE and SEC regional office staff discussed Shaine's financial condition throughout the day on October 19, and all interested SROs were advised of the decision to place Shaine in liquidation in a timely manner before markets opened on October 20.

d. Broker-Dealer Fails to Deliver And Receive

Broker-dealer fails to deliver and fails to receive in clearing agency CNS systems during the week of October 19 caused few, if any, financial or operational problems. 51/ Under normal settlement procedures, CNS transactions that are not settled on settlement

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49/ See SEC, Division of Market Regulation, Report of the 1984 Securities Processing Roundtable, 5-8 (May 1984).

50/ Rule 17d-2 under the Act (17 CFR 240.17d-2) permits two or more SROs to file with the Commission a plan designating a single SRO as responsible for receiving regulatory reports, conducting examinations, enforcing compliance and performing other regulatory functions of members who are participants or members of more than one such SRO.

51/ Indeed, the total dollar value of fails to receive, fails to deliver, stock loan and stock borrow on October 30 for 17 firms conducting a public business declined significantly from the total dollar value of those items on September 30. See Table 10-8.

day are carried over to the next settlement day as open obligations. The clearing agency protects itself against financial risk by obtaining mark-to-the-market payments 52/ from members whose open obligations move against them. Most open obligations are settled quickly to avoid the risk that the market will move away, creating large mark-to-the-market payments, and also because certain net worth adjustments must be made on aged fails. 53/ The experience of brokers and dealers during the market break was unlike that of the Paperwork Crisis of the late 1960s, when brokers and dealers were unable to keep track of mushrooming numbers of fails to deliver and receive. In the 1960s, without central clearing and marking-to-the-market systems, sound brokers and dealers were endangered by the operational and financial problems of brokers-dealers with whom they conducted business. 54/

e. Exposure From Customers' Positions

The steep decline in stock prices on October 19 made some clearing members vulnerable to financial loss because of exposure from their customers' positions, through customer inability to meet either margin calls or transaction settlement obligations. This in turn increased the risk that a clearing agency might suffer a loss if one of its members failed or became insolvent.

Many customers, institutional and otherwise, open their accounts with an introducing broker. The introducing broker, in turn, uses an executing broker (which is usually a member of a clearing agency) to execute and clear trades made by the customer. During periods of high volatility, especially when the market decreases sharply, some customers may walk away from their losing trades or may not be able to meet margin calls on financed or pledged positions. If the customer fails to meet margin calls made by the clearing firm or fails to pay on T+5 the settlement amount for securities it has purchased, then the introducing or executing broker must pay that debt. If this amount is too great for the introducing broker to pay (market volatility also may affect its ability to cover customer defaults) and it fails, the responsibility for covering the customer's debt will run to the clearing firm. Potentially, one or more clearing members could fail under this scenario, creating enough momentum to jeopardize the clearing agency and all its members.

During and after the week of October 19, over 50 introducing brokers failed, many as a result of an inability of their customers to meet margin calls and pay

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52/ "Marking-to-the-market" refers to the process by which the difference between securities' market value and the contract price is collected from parties to a transaction.

53/ Rule 15c3-1(c)(2)(ix) under the Act requires a broker or dealer to deduct from its net worth for each fail to deliver that remains outstanding for more than five business days after settlement date an amount equal to the appropriate haircut for the underlying security. In addition, if the market value of the security falls below its contract value, this difference must also be deducted from net worth. See 17 CFR 240.15c3-1(c)(2)(ix).

54/ See Securities and Exchange Commission, Study of Unsafe and Unsound Practices of Brokers and Dealers, H.R. Doc. No. 231, 92nd Cong., 1st Sess. 13 (1971).

settlement obligations. 55/ In some cases several failed introducing brokers cleared through the same clearing member. For example, 10 failed introducing brokers cleared through one NSCC member, while six cleared through another NSCC member. Although some strain resulted, no clearing members failed as a result of the failure of introducing brokers. Many of the introducing brokers reopened later when they received capital infusions from a parent corporation, their customers paid, or they obtained subordinated loans from their clearing firms to increase their net capital. 56/

f. Analysis

Clearing agency systems for monitoring member financial condition and managing member defaults were tested by the extreme volatility and volume of the recent October market break. Overall, the clearing agencies handled well the actual and potential member defaults; in general, the clearing agencies were able to spot potential member defaults and follow them until the situation eased or the member ceased doing business. Clearing agency monitoring and communication among clearing agencies enabled them to minimize or eliminate loss. The October market break, however, did bring to light areas where the Division believes improvement of present procedures should be considered. These areas include: (1) coordination among clearing agencies and DEAs; (2) protecting against clearing agency losses occasioned by clearing member customers' losses; (3) clearing agency exposure from earlier trade guarantees; (4) earlier trade settlements; and (5) clearing member capital requirements.

1. Information Coordination Among Clearing Agencies

MCG procedures for coordination of information among clearing corporations, depositories, DEAs and regulators should be reexamined and reconfirmed. Communication among these entities during the week of October 19 regarding common member firms in financial or operational difficulty generally was good. The DEA's designation as the primary focal point for the collection and dissemination of information on common members helped to keep all interested entities well-informed and allowed them to take appropriate actions to protect themselves and their members. To assure the continuation and emphasize the importance of information coordination in the future, however, MCG members should meet in the near future to discuss how well the procedures operated during the week of October 19 and any further improvements in the procedures that may be added. In addition, the MCG should include commodity futures clearing corporations and other appropriate futures entities to assure complete coordination and dissemination of information on common members. Finally, procedures should be established for updating regularly contact persons and telephone numbers for each MCG member.

55/ For example, First Potomac Securities Corp. of Falls Church, Virginia, closed on October 23 because it could not cover $3.2 million in unsecured debts. Of the $3.2 million, $1.5 million was from customers' failure to meet futures margin calls and $1.7 million was attributed to customers' default on stock transactions. See also discussion, supra, in Chapter Five.

56/ See Chapter Five.

ii. Clearing Member Customer Information

Customer failure to meet margin calls or to pay for purchased securities, as discussed above, exposed some clearing members to financial loss. Member insolvency is a significant external risk for a clearing agency and minimization of this risk is an important and necessary goal. Accordingly, it may be appropriate to consider ways that clearing agencies, on a routine basis, can look through their members to those firms or customers whose activity is most likely to cause clearing member insolvency. 57/

One alternative is for clearing agencies to require disclosure of basic general information concerning all broker-dealers who use clearing member services. Information to be disclosed on a monthly or quarterly basis might include name, average dollar value of daily settlements, type of trading activity (e.g., municipal, mortgage-backed, government, equity, option, index option) and general financial data.

Disclosure of certain general information to the clearing agency about firms for whom the clearing member maintains positions on an omnibus basis would provide a number of benefits. First, if the clearing agency detects that a member has customers that may not pay and thereby would place the member in financial difficulty, an early warning system would enable it to take appropriate action earlier (such as consulting with the member, increasing margin on the member's account or on certain sub-accounts or collecting an additional mark-to-the-market payment) to prevent a possible member default and subsequent draw on the clearing fund and other clearing agency or member assets. Second, this information might allow clearing agencies to determine whether it is appropriate to collect additional clearing fund contributions from clearing members with a large concentration of introducing brokers, market-makers or specialists. This could help reduce risk of member default if one or more of these customers fail and could decrease the chance of market disruption. 58/

Another alternative might be for clearing agencies to require clearing members to process on a fully disclosed, rather than omnibus, basis transactions for broker-dealers whose average daily activity or open positions may pose financial risk to the clearing member or the clearing agency. Those thresholds, of course, might be set after comment from interested parties through SRO rulemaking. One possible benefit would be real-time disclosure of settlement activity for each clearing member's account, thereby allowing clearing agencies to identify positions that pose extraordinary financial risk with sufficient time for corrective action. That benefit, however, may be

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57/ As discussed in Chapter Three, disclosure of information concerning customers holding large positions should be considered. Moreover, disclosure concerning market-makers, specialists and broker-dealers using clearing member services would appear to be a near-term step that should be considered. Those firms must file certain financial information with the Commission and DEAs on a routine basis, and they generally are active market participants.

58/ Failure of such a clearing member, in addition to possibly causing a loss to the clearing agency (and then a possible draw on the clearing fund and pro rata assessment on the remaining clearing members), also could force the clearing member's other customers to seek a new clearing firm. If enough of these customers are specialists or market-makers, market disruption could result if they do not find a new clearing firm quickly.

outweighed by the increased cost of processing transactions at clearing agencies on such a basis.

iii. Earlier Mark-to-the-Market Payments to Cover Exposure from Clearing Agency Trade Guarantees

Prior to the market break, NSCC announced that it would guarantee trades on the day they are reported as compared, generally T+1 or T+2. 59/ Other clearing corporations have filed similar proposals with the Commission. 60/ NSCC also adjusted its clearing fund formula to provide safeguards against exposure from those earlier guarantees. 61/ Because of the unprecedented price volatility experienced during the

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59/ See Securities Exchange Act Release No. 24301 (April 3, 1987), 52 FR 11892; NSCC Notice to Members No. A-2753 (April 23, 1987). Earlier clearing corporation guarantees were discussed at the 1984 Securities Processing Roundtable ("Roundtable"). A number of Roundtable participants indicated their belief that earlier guarantees would increase the certainty of trade settlements. This was viewed as particularly desirable for trading strategies that couple stock trades with options or futures trades, because options and futures trades settle on a next-day basis. Earlier equity trade guarantees also would decrease the need for members to make credit judgments regarding their counter trading parties.

Roundtable participants also discussed an earlier mark-to-the-market ("marks") system as a desirable safeguard for the increased clearing corporation exposure that would result with an earlier guarantee. Many broker-dealers believed that for customer-related activity, they would be forced to fund earlier marks themselves, because institutional customers generally settle on a cash-on-delivery basis and would be unwilling to, or legally restrained from, paying marks prior to settlement. Those brokers, however, believed that they could fund non-cash marks by depositing letters of credit or valued securities with the clearing corporation. It was suggested that smaller brokers could have difficulty even with non-cash marks.

60/ See, e.g., Securities Exchange Act Release No. 24705 (July 15, 1987), 52 FR 27486.

61/ Under the earlier guarantee, mark-to-the-market payments are still made on T+5. Because there is the risk that the market price of a trade will move away from the contract price before settlement date (T+5), NSCC is at risk for that market movement if the participant fails to settle the transaction. Therefore, NSCC adjusted its CNS clearing fund formula to consist of three components, including a component that is based on the difference between the contract price and current market price for all compared trades that have not reached settlement. This is the mark-to-the-market component of the formula. Because NSCC uses a rolling 20-day average of all compared guaranteed trades, the actual clearing fund contribution attributable to marks-to-the-market is less than what daily collection of marks-to-the-market would dictate. The other two components of the clearing fund formula cover allocation risk and liquidation risk. Allocation risk is the risk that a member may be unable to pay for securities it has purchased when those securities are delivered. The clearing fund contribution attributable to this component is 2% of the member's projected total long CNS positions. Liquidation risk is the risk that a member may become insolvent and NSCC will cease to act

market break, the Division currently is reassessing clearing corporation safeguards applicable to earlier CNS guarantees.

Overall, NSCC's aggregate clearing fund was sufficient to cover its market risk exposure during the market break. On October 20, NSCC's total CNS market risk exposure was approximately $90.7 million, 62/ and on October 21, that exposure was approximately $97.25 million. By comparison, the total exposure on October 14 was approximately $42.96 million. NSCC's clearing fund, with approximately $437 million in deposits on October 31, 1987, was sufficient to cover NSCC's market risk exposure during the market break. For the period October 12-30, NSCC made 29 requests for additional clearing fund deposits, all of which were met. Of the 29 requests, 13 were made on retail firm members, six on institutional members, five on specialists and the remaining on various other types of members. Those requests ranged from $1,000 to $6,000,000 and totalled $16,505,000 during the period.

In some individual cases, however, a member's clearing fund deposit was not sufficient to cover what would have been its daily mark-to-the-market obligation if NSCC collected marks-to-the-market on all guaranteed trades. Those deficiencies provide an estimate of NSCC's potential losses on liquidation. For example, in a sample of 30 NSCC members (including five members in each of six categories: retail, specialist, market-maker, clearing, institutional and arbitrage members), four members on October 19, six members on October 20, and seven members on October 21 would have had daily marks in excess of their clearing fund deposits. In each case, however, it appears that each member's excess net capital as of the end of September 1987 would have been sufficient to cover that portion of the daily mark not covered by the member's clearing fund deposit. In summary, although the potential exposure is significant, the Division believes NSCC's member monitoring procedures, as enhanced by new systems NSCC expects to implement in the next few months, coupled with NSCC's aggregate clearing fund, provide adequate overall protection for an earlier guarantee. Nevertheless, the Division believes that earlier marks-to-the-market provide the greatest level of

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for the member and liquidate its positions. To protect against any potential difference between the liquidation price of the member's positions and the current market price, the liquidation risk component is 0.25% of the net of all the member's guaranteed pending CNS trades and open CNS positions.

NSCC collects clearing fund deposits from members on a monthly basis, although participants under surveillance can be requested to make additional deposits daily. Participants may request the return of excess clearing fund deposits, which NSCC will make available if the member is not on surveillance or if NSCC determines that the amount on deposit exceeds the risk requirements.

62/ The total exposure figure represents the aggregate negative marks-to-the-market on guaranteed NSCC member open positions prior to settlement date (T+1 through T+5). Under NSCC's earlier guarantee, these trades are guaranteed as of midnight of the day they are reported as compared (generally T+1 or T+2) but a mark-to-the-market assessment is not made until settlement date, T+5. Thus, $90.7 million reflects NSCC's exposure associated with selling out or buying in securities for trades executed on October 14-16 and for trades executed through automated systems on October 19 and reported as compared on October 20.

protection. Accordingly, the Division will continue discussions with NSCC regarding additional steps to ameliorate remaining exposures from an earlier guarantee.

In addition, the Division believes that NSCC's current risk monitoring system should be enhanced. As discussed above, NSCC monitors its members' guaranteed positions that have not reached settlement in order to assess the liquidation exposure to NSCC of each member. NSCC marks the member's open but unsettled positions to the closing prices of the previous day to determine the potential cost of liquidation to NSCC if that firm defaults. This monitoring system is limited, however, because it does not provide real-time estimates of liquidation cost; i.e., it marks the positions to yesterday's close but does not take into account today's price movements or, perhaps more importantly, potential price movements tomorrow. Thus, if current prices vary significantly from yesterday's close, NSCC will not have an accurate, up-to-the-minute cost of liquidation. The Division understands that NSCC expects to upgrade its system within the next few months to provide estimated liquidation costs based on current and projected future prices.

iv. Earlier Trade Settlements

Questions have been raised over the impact of different clearing systems and procedures for stock, options, and futures. 63/ At some point in the future, it may be possible and desirable to shorten the current five-business-day settlement cycle for stock transactions. A shorter corporate equity settlement cycle (e.g., next-day, T+2 or T+4) would coordinate more closely with next-day settlement in futures, options, and government debt markets and also would reduce clearing agency exposure from the time of trade guarantee to settlement. As discussed below, however, current practices involving trade comparison, customer-side settlement, and broker-dealer financing would need to be reconsidered and could be an impediment to any near-term switch to earlier trade settlement.

Trades executed and compared through automated systems often account for over 50% of NYSE volume. Because those trades are compared by T+1, the comparison process would not prevent earlier settlement. For all other trades, however, including more than 90% of NASDAQ trades, the comparison process currently requires several days. Broker-dealers first learn of initial comparison results on T+2 and attempt to resolve uncompared trades on T+2 and T+3. Although locked-in trades currently could be settled earlier, a bifurcation of settlement dates between locked-in versus other trades could require significant systems changes to avoid confusion. Increased use of locked-in trading systems and improvements to the two-sided comparison process, however, could enable earlier settlement of most trades.

As noted above, broker-dealers settle trades with customers in the same five-business-day settlement cycle that is used for inter-dealer settlement. Although the customer-side settlement process has been automated, particularly for institutional trades, widespread use of NIDS is a relatively recent development. Initiatives requiring broker-dealer use of NIDS were first put in place in 1983 and recent changes will

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63/ See Report of the Presidential Task Force on Market Mechanisms (January 1988) (available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402).

require nearly all broker-dealers and institutions to use NIDS. 64/ Currently, NIDS enables affirmation of nearly 90% of institutional trades, but 25% of confirmed trades either fail to settle on T+5 or are settled outside securities depositories. Because it appears infeasible to move to earlier customer-side settlement at this time, earlier street-side settlement would impose substantial costs on broker-dealers to finance street-side settlements pending customer-side settlement.

Broker-dealer financing and stock deliveries for transaction settlements currently are arranged within the five-day settlement cycle. The five-day cycle allows broker-dealers at least several business days 65/ to arrange, if necessary, bank financing for net security purchases or stock loans for delivery obligations. 66/ Lenders also have several days to decide whether, and to what extent, they will finance broker-dealers' activity. An earlier settlement cycle, especially if money settlement were effected in same-day funds, 67/ would require broker-dealers and lenders to accelerate all actions necessary to complete financing arrangements. This acceleration could increase the likelihood of fails and resulting potential difficulties for clearing members.

v. Clearing Agency Capital Requirements

Reexamination and possible strengthening of clearing agency rules that establish net capital requirements for clearing members would serve as a further layer of protection for clearing agencies against member defaults as a result of volatile markets. Rule 15c3-1 requires brokers and dealers to maintain net capital of not less than $25,000 and a ratio of aggregate indebtedness 68/ to net capital of no more than 15 to 1, or under the alternative method, the greater of $100,000, or 2% of aggregate debit

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64/ See note 27, supra.

65/ NSCC distributes to members on T+3 a projected settlement report that gives members a preliminary indication of T+5 net settlement obligations.

66/ Equity securities, unlike other securities such as options or U.S. government securities that settle next-day in same-day funds, vary greatly in availability and public float. Thin trading interest, float, or events such as a tender offer, among other things, may make it difficult to arrange a stock loan of certain securities to meet settlement obligations related to short sales or fails to receive.

67/ Same-day funds are immediately available whereas clearinghouse funds generally are not available until presented and paid, typically the day after settlement. See Same-Day Funds Settlement For Securities Transactions: A Research Report (July 1985) (sponsored by American Bankers Association and Securities Industry Association).

68/ "Aggregate indebtedness" is the total money liabilities of a broker or dealer arising in connection with all its transactions. See 17 CFR 240.15c3-1(c)(1).

items. 69/ Most clearing agencies provide for a somewhat higher standard for their members. For example, OCC requires minimum net capital of $100,000. 70/

In light of the failures experienced by a number of clearing member customers during the market break and the apparent increased risk caused by market volatility, clearing agencies should consider strengthening their member net capital standards or instituting additional financial requirements such as those required for participants in DTC's recently approved Same Day Funds Settlement ("SDFS") Service. 71/ Although increased capital requirements for clearing members could strengthen clearing member financial positions and decrease default risk, especially during periods of high market volatility, such requirements also would have other effects. As discussed below in Section C, increased clearing agency requirements could decrease the number of broker-dealers eligible for clearing agency membership and increase costs for broker-dealers that cannot maintain membership.

3. Certificate Handling by Depositories, Transfer Agents, and Broker-Dealers

Depositories, transfer agents, 72/ and broker-dealers processed an unprecedented quantity of securities certificates resulting from trading activity during October. Notwithstanding that volume, certificate handling, transfers, and registrations from October trades overall were prompt and accurate. As a result of the lessons learned during the Paperwork Crisis of 1967-70, securities processing organizations have successfully automated their procedures. 73/ In addition, depositories are widely utilized, reducing the number of certificates that must be transferred; and some depositories maintain Transfer Agent Custodian ("TAC") arrangements 74/ and Direct

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69/ See Exhibit A to Rule 15c3-3(a) under the Act [17 CFR 240.15c3-3(a)] for a definition of the term "aggregate debit items."

70/ See OCC Rules, Chapter III, Rule 302.

71/ The SDFS Service requires that each participant make a minimum cash deposit of $200,000 into the SDFS Fund. In addition, each participant must maintain sufficient collateral on all SDFS transactions to cover projected settlement obligations. Participants also are subject to a net debit cap, which limits each participant's net debit at any time during the processing day to a certain ceiling amount calculated for that participant. See Securities Exchange Act Release No. 24689 (July 9, 1987), 52 FR 26613.

72/ Publicly-held companies contract with transfer agents, among other things, to maintain shareholder ownership records and issue negotiable securities certificates to purchasers.

73/ Indeed, many transfer agents' systems are highly automated and may include the capacity to accept depository transfer instructions via automated tape transmission.

74/ Under a TAC arrangement, the transfer agent maintains custody of some or all of the depository's holdings in a "balance certificate." When a depository requests a withdrawal, TAC arrangements allow a transfer agent to issue the certificate withdrawal and merely change the depository's certificate to reflect the change in

Mail Programs 75/ with large transfer agents. Furthermore, transfer agents now have larger and better trained staffs and a regulatory scheme has been enacted to ensure that clearing agencies and transfer agents process securities transactions in a prompt and accurate manner. 76/ In large part, these achievements made possible smooth certificate processing as well as efficient clearance and settlement of transactions during the market break.

While the overwhelming majority of trades are settled by book-entry movements at a securities depository and securities remain on deposit at the same location thereafter, 77/ many customers who purchase securities require issuance of negotiable securities certificates in their names. Moreover, most state corporate laws authorize shareholders to obtain negotiable certificates, on demand, evidencing their ownership interest in the corporation. In addition, Arkansas, New Mexico, and Wyoming require local insurance companies to maintain custody of certificates evidencing their equity investments within the boundaries of those states. Thus, issuing, cancelling, and negotiating physical securities certificates remain integral parts of clearing and settling corporate equity transactions.

Nevertheless, today's depositories are increasingly central players in certificate processing. For example, purchasers who receive securities certificates do so as a result of the coordinated efforts of a broker-dealer, a depository, and a transfer agent. Upon request by a customer, the broker-dealer instructs the depository to debit the broker-dealer's account and make available certificates registered in appropriate names for forwarding to customers. The depository either withdraws a certificate from its vault and sends it to the transfer agent for cancellation and reissuance in the customer's name, or if the depository has a custodial arrangement with the transfer agent, the depository submits instructions to the transfer agent to debit the depository's account and prepare a certificate for the customer.

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share ownership. This avoids the delay and risk associated with shipping physical certificates between the transfer agent and the depository.

75/ Under a Direct Mail Program, certificates intended for customers may be sent by the transfer agent directly to the broker-dealer or customer, without first having to go back to the depository.

76/ See Section 17A of the Act, which directs the Commission to facilitate establishment of a national clearance and settlement system and establishes the Commission's authority to register and regulate clearing agencies and transfer agents. See, e.g., Rules 17Ab2-1 through 17Ad-14, 17 CFR 240.17Ab2-1 through 240.17Ad-14 (1987).

77/ Many investors request broker-dealers or banks to safekeep their securities; broker-dealers and banks use depositories to safekeep those and other securities. For ease of transfer and handling, depositories separate the legal and beneficial ownership of securities by re-registering the certificates in the depository's nominee name and maintaining accounts for each member bank or broker-dealer. In turn, broker-dealers and banks maintain records of customer securities.

a. Depository Certificate Processing During the Market Break

Despite increases in the number of physical certificates deposited and dramatic increases in withdrawals, depositories processed these requests smoothly during the market break. 78/ The Division reviewed deposit and withdrawal statistics from the three active registered securities depositories: DTC, MSTC, and Philadep. At all three depositories the number of deposits increased and the number of customer-name withdrawals increased dramatically. As indicated in Table 10-9, deposits at DTC from October 26 through November 2 increased by 17% over the September average. Withdrawals from October 26 through November 2 increased by 103% over the September average. 79/ Table 10-9 also indicates that by early November, two weeks following the market break, the number of withdrawals had tripled when compared with prior averages.

MSTC's and Philadep's deposits and withdrawals followed the same pattern. MSTC's deposits remained essentially unchanged and Philadep's declined slightly. MSTC processed approximately twice as many withdrawals following the market break as it did during the week before the market break. Philadep processed triple the number of withdrawals following the market break in comparison to the prior few weeks, with peak withdrawals on November 2 that were more than six times higher than the prior week's average.

b. Transfer Agent Performance

Transfer agents also had significantly increased workloads as a result of the increased transaction volume and market volatility. All available evidence, however, indicates that transfer agent performance throughout the market break met regulatory and industry performance standards 80/ and facilitated prompt and accurate clearance and settlement of securities transactions. For example, the Securities Transfer

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78/ As noted above, book-entry deliveries through DTC also increased, as CNS receipts and deliveries during this period were 300% greater than normal and NIDS deliveries peaked at almost 250% of normal levels.

79/ Participants may withdraw certificates from depositories by one of two methods: "customer-name" withdrawals or "street-name" withdrawals. When a participant requests a customer-name withdrawal, the depository instructs the appropriate transfer agent to prepare a securities certificate registered in the participant's name or a customer's name and to deduct a corresponding number of shares from the number of shares held by the depository's nominee. Street-name withdrawals are provided to the requesting participant as certificates registered in the depository's nominee name.

80/ To ensure that physical certificates are transferred in a prompt and accurate manner, the Commission has established minimum performance standards for transfer agent certificate processing. Rule 17Ad-2(a), for example, requires certain registered transfer agents to process at least 90% of all routine items received for transfer during each month within three business days of receipt. If a transfer agent fails to meet this requirement, Rule 17Ad-2(c) requires the transfer agent to file with the Commission and its appropriate regulatory agency a notice describing the problem and the steps it is taking to prevent a recurrence.

Association ("STA"), in its report to the Presidential Task Force on Market Mechanisms ("STA Report") concluded that,

> despite increases in workloads, no significant problems in certificate processing were reported at major transfer agents during November. Moreover, no increase appears to exist in customer complaints pertaining to delays in receiving certificates, processing transfer requests, handling shareholder inquiries, or effecting purchase or liquidation orders for dividend reinvestment or other custodial securities maintained by investors directly with transfer agents. 81/

Indeed, the Commission received only one turnaround exception notice reporting non-compliance with the turnaround requirements caused by the increased volume during the market break period. 82/ Furthermore, 89% of the transfer agents that responded to the STA reported that the volume increase had no effect on their ability to meet the turnaround requirements, calculated on a monthly basis. 83/ Moreover, DTC (the single largest user of transfer agent services) reported that transfer agents responded to its requests in a timely manner. DTC prepares a periodic report on the timeliness of transfer agents. Analysis of this report's statistics from before and after the market break reveals that while transfer agents processed a 96% increase in withdrawals and a 19% increase in deposits, overall timeliness of transfer agents' performance appears to have improved.

81/ The Securities Transfer Association, Report of the Securities Transfer Association to the Presidential Task Force on Market Mechanisms, 13 (December 24, 1987). To obtain the information discussed in the report, the STA contracted with Market Facts, Inc., a market research firm, to conduct interviews with transfer agents and broker-dealers. Some of the data in the STA survey was provided after a review of the pertinent records and some of the data is the result of estimates. The STA Report surveyed 96 transfer agents of various sizes and geographical locations, and 13 broker-dealers representing regional, discount, national full-service and very large firms.

The STA Report stated that 47% of the 96 transfer agent respondents experienced an increase in activity, measured by the number of certificates issued and debited, since the October market break. Seventy-seven percent of major transfer agent respondents reported an increase in activity. Twenty-six percent of all transfer agents and 59% of the major transfer agents that reported an increase in volume of work reported that they worked overtime or added extra resources or both to meet the increased workload resulting from the market break.

82/ The only transfer agent that reported missing the turnaround deadline for reasons related to the market break processed 77.4% of routine items within three days of receipt. It stated that it did not meet the turnaround requirements because of a higher than normal number of transfer requests, turnover of transfer personnel, and computer malfunctions. It subsequently has taken corrective actions to address these problems.

83/ Six of the 96 responding transfer agents reportedly missed the 90% turnaround standard on one to three days during the market break period, and one respondent reported missing the 90% standard on 10 days during that period.

According to the STA Report, some transfer agents are considering changes to their processing capacity and procedures as a result of the volume increase during the October market break. Changes being considered include: increasing systems hardware capacity; changing procedures; implementing new interfaces with depositories; increasing staff; and increasing telephone capacity.

c. Broker-Dealer Certificate Turnaround

Broker-dealers are an integral part of the securities certificate-handling chain. Generally, broker-dealers obtain certificates in three circumstances: when a customer sells securities that he or she had held personally; when a customer requests that the broker-dealer safekeep certificates on the customer's behalf; and when a customer elects to receive the certificates he or she has purchased.

As part of its study, the Division surveyed 23 broker-dealers conducting a public business concerning the number of business days broker-dealers took to deliver certificates from transfer agents or depositories to customers. 84/ Twenty-one of the 23 responding broker-dealers reported that they delivered certificates to customers in three business days or less. Two broker-dealers reported that they delivered certificates to customers in four to seven business days. 85/

The Division believes broker-dealers should deliver certificates promptly to customers, transfer agents or depositories, as appropriate. Prompt delivery of certificates is essential to safe and efficient broker-dealer operations and consistent with broker-dealer obligations to customers.

d. Lost and Stolen Securities Program

During the market break, broker-dealer and bank use of key aspects of the Lost and Stolen Securities Program ("Program") declined, perhaps because of higher market trading volume. While recovery reports increased, inquiries declined significantly in October and November. 86/ The Program 87/ requires financial institutions, including, among others, broker-dealers, and federally insured banks, to report securities losses,

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84/ These statistics reflect October 14 - November 6 activity.

85/ The Division also requested information concerning the number of business days broker-dealers took to transmit securities to a depository or a transfer agent. Thirteen of the 23 broker-dealers that responded reported that they forwarded customers' certificates within one day of receipt. Six of the 23 responding broker-dealers reported that they forwarded customers' certificates within three days of receipt. The remaining four broker-dealers reported that they forwarded customers' certificates from three to seven business days after receipt.

86/ See Tables 10-10 and 10-11.

87/ In 1976, the Commission adopted Rule 17f-1 under the Act, establishing the Program. The Rule was intended to deter trafficking in lost, stolen and counterfeit securities. See 17 CFR 240.17f-1(1987). See also Securities Exchange Act Release No. 13832 (August 5, 1977), 42 FR 41022. The Securities Information Center ("SIC") was designated by the Commission to operate the Program.

thefts and instances of counterfeiting ("reports") 88/ and to inquire whether securities coming into their possession were reported as such ("inquiries"). 89/

The statistics show that, during October 1987, SIC received 65,430 reports, including 12,164 recovery reports ("recoveries"), and 158,248 inquiries. Loss and recovery reports approximated SIC's 1987 monthly averages (based on January through August 1987 activity), but inquiries were well below that average despite record trading volume. According to SIC, the sharpest decline occurred during the two-week period starting from October 19, when the number of inquiries dropped approximately 16,000 from the expected number of inquiries in a two-week period. 90/ The reason for the decrease in inquiries is unclear, but it is possible that during that high volume period, firms moved personnel who normally work on Rule 17f-1 compliance to other more pressing, labor-intensive operations such as trade resolution.

During November 1987, SIC received 83,902 reports, including 36,655 recoveries, and 148,506 inquiries. Reports increased substantially due to an unusually high number of recoveries. 91/ Unlike reports, inquiries decreased. SIC received 10,000 fewer inquiries in November than in October, an amount well below SIC's January through August 1987 monthly average. 92/

According to Program participants, recent high trading volume and market volatility levels have made Rule 17f-1 compliance more difficult. Although firms believe they have made reports and inquiries at an average rate during this time, they still are assessing the impact of recent events on their participation in the Program. The Division will continue to monitor developments and compliance.

88/ Reports of lost, stolen, or counterfeit securities are made to SIC on Form X-17F-1A. Stolen and counterfeit securities must be reported within one business day of discovery of the theft or counterfeiting. Missing securities are deemed lost after two business days and, with certain exceptions, must be reported within one business day of the end of that period. Firms also must report the recovery of any security previously reported lost, stolen, or counterfeit. For January through August of 1987, SIC averaged approximately 67,000 reports a month. Of these 67,000 reports, approximately 14,000 were recovery reports. See Tables 10-10 and 10-11 for a monthly breakdown of 1987 inquiries, loss reports, and recovery reports.

89/ Generally, inquiries are phoned in to SIC headquarters. For January through August of 1987, SIC averaged 190,000 inquiries a month.

90/ From October 19 to the end of the month, 78,964 inquiries were made at SIC. For January through August 1987, SIC averaged 95,000 inquiries for a two-week period.

91/ One transfer agent accounted for 20,000 of the 36,655 recoveries reported because of a recent tender offer. Apparently, the high volume of securities received in the tender offer generated a large number of recoveries that subsequently were reported to SIC.

92/ In December, SIC received 184,614 inquiries, 74,776 loss reports, and 16,331 recovery reports. Inquiries and recovery reports for December approximated SIC's January through August 1987 average, and loss reports exceeded that average.

e. Analysis

During the market break, depositories, transfer agents, and broker-dealers were required to process an enormous volume of physical securities certificates. They avoided the paralysis that occurred during the Paperwork Crisis of 1967-70 because of the efforts to establish a safe and efficient National Clearance and Settlement System. Improved automation was critical to the securities industry during the market break. For example, automated tape transmissions to transfer agents of depository withdrawal requests enabled transfer agents to accommodate large increases in volume without adverse effects on turnaround performance. Nevertheless, several transfer agents reported a sharp increase in transfer requests directly from broker-dealers. Accordingly, the Division believes transfer agents and depositories should continue their efforts to automate the securities transfer process and ensure that their computer systems have sufficient capacity to handle the even higher volumes which may occur in the future.

In addition, transfer agents and depositories should continue to expand Direct Mail programs and TAC arrangements. Direct Mail programs and TAC arrangements reduce the physical movement of certificates, especially during periods of high volume, and the number of intermediaries who must handle certificates before those certificates reach public investors.

Certificate immobilization at depositories provides many benefits. It reduces the number of physical transfers of securities certificates and the cost, inefficiency, and risk such transfers pose. Indeed, use of depository services facilitated the extraordinary transfer volume during the market break period. Broker-dealers, depositories and transfer agents should explore ways to increase certificate immobilization. Those organizations also should explore ways to increase the role of depositories as conduits for broker-dealer transfer requests. To ensure that depository participants have easy access to, and make maximum use of, depository services, depositories also may wish to consider increasing the standardization and compatibility of their services. 93/

C. Options

1. Background

a. Options Clearance and Settlement

OCC issues, clears, and settles all standardized options traded on securities exchanges or quoted on NASDAQ facilities. 94/ Unlike trades in equity securities that clear and settle at several registered clearing agencies, OCC provides common clearing facilities for all securities options. Thus, all securities option trades are cleared and

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93/ The securities and banking industries generally support these goals. See, e.g., SEC, Division of Market Regulation, Progress and Prospects: Depository Immobilization of Securities and Use of Book-Entry Systems, Draft Staff Report (June 14, 1985).

94/ OCC is owned by its participating exchanges (i.e., Amex, CBOE, NYSE, PSE, and Phlx) and the NASD.

settled at OCC through an OCC clearing member. 95/ OCC maintains book-entry ownership interests in options for its clearing members, who in turn maintain ownership records for their customers and other broker-dealers, including options market-makers.

OCC provides comprehensive options clearance and settlement services for its clearing members. First, OCC receives trade data from options markets and settles premium payments between writing and purchasing clearing members on the business day after the trade date in immediately-available funds. Upon payment of the premium by the OCC clearing member, OCC "accepts" the trade and becomes guarantor on the transaction, crediting clearing member buyers (holders) with long positions and debiting clearing member sellers (writers) with short positions on OCC's books and records.96/ Second, and as discussed below, OCC collects margin from clearing members with short positions as part of its safeguarding systems to secure its obligations to option holders. OCC also can call for the deposit of additional margin, known as variation margin, at any time during the business day whenever OCC deems it is advisable for the protection of OCC, clearing members or the general public. Third, OCC randomly assigns to clearing members with short positions exercise notices OCC receives from option holders. OCC combines all premium, margin, and settlement obligations to arrive at a net daily settlement amount for each account each day, which is collected or paid in immediately-available funds each morning between 10:00 a.m. and 11:00 a.m. 97/ Because OCC provides common clearing facilities for standardized securities options, broker-

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95/ OCC currently has approximately 190 clearing members. Purchases and sales of options on common stocks are cleared and settled at OCC, but delivery obligations of underlying equity securities and related payments associated with exercised options clear and settle at correspondent clearing corporations, e.g., NSCC or MCC, like any other inter-dealer purchase or sale. Index options (e.g., OEX and XMI) are cleared and settled for cash exclusively at OCC.

96/ Each clearing member maintains several accounts at OCC including a firm account, separate market-maker's or specialist's accounts, combined market-makers' or specialists' accounts, and a customers' account. Clearing members also may establish and maintain pledge accounts for each market-maker, specialist or combined market-makers' or specialists' account, as well as a registered trader's account, combined registered traders' account, and a stock market-maker's or stock specialist's account.

97/ All times refer to Eastern Standard Time. See, infra, at Section C.4 for a discussion of OCC's money settlement procedures.

OCC also offers its clearing members a variety of specialized clearing services. For example, and as discussed below, the OCC pledge program enables clearing members to pledge certain options positions to banks as collateral for bank loans. Additionally, the escrow receipt program enables clearing members to post underlying securities in lieu of margin by depositing shares of underlying stock (or cash or securities equal to the value of the underlying asset in the case of non-equity options) with an OCC-approved custodian. This can be accomplished in an automated environment through the escrow receipt depository system.

dealers trading on more than one market can settle their activity through one account with one net payment at OCC. 98/

As discussed below in greater detail, OCC protects itself against exposure from member defaults in a number of ways. Most importantly, OCC collects margin or other collateral from clearing members for the writers' positions that they carry. Additionally, OCC requires that clearing members meet special financial and capital maintenance and reporting requirements, and monitors members' compliance with those requirements. OCC also maintains stock and non-equity option ("NEO") 99/ clearing funds. Clearing members that carry positions in stock options must contribute to the stock clearing fund, which collateralizes the obligations of all clearing members in connection with stock options. The NEO clearing fund serves the same function for options other than stock options, e.g., foreign currency options and stock index options. Each fund also may be drawn upon to collateralize the other, should the other prove to be insufficient.

b. Margin

OCC requires clearing members to post margin on all uncovered short positions and uncovered assigned positions carried in OCC accounts. An uncovered position is one that is not satisfied by a deposit of the underlying asset with an OCC-approved bank or trust company or offset by an unsegregated long position in the same option class. OCC's margin requirements apply only to OCC clearing members and should not be confused with the minimum margin that must be maintained in customer accounts as set by the options markets in accordance with Regulation T. 100/

OCC maintains two separate margin systems, one for equity options and another for NEOs. Under the equity system, margin on an uncovered short put or call position is the marking price (i.e., premium) times the unit of trading (i.e., 100 shares) and the multiplication factor (i.e., 1.3). 101/

OCC clearing members can reduce clearing margin requirements through OCC netting of certain hedged positions within the same option class, i.e., options on the same underlying asset (spread margin). The margin calculation procedures for spreads and how they are applied differ according to the type of clearing member account.

98/ Although multiple clearing agencies provide services for corporate and municipal securities markets, interfaces among those organizations permit broker-dealers to enjoy the principal benefit of common clearing, one-account settlement.

99/ Non-equity options include stock index, foreign currency, and interest rate options.

100/ Customer and broker-dealer margin requirements are discussed in Chapter Five.

101/ The marking price is the closing ask price for the option as reported by OCC's primary price-reporting vendor. If this price violates certain edit criteria in OCC's system, a warning is generated and OCC refers to another vendor for appropriate price information. The unit of trading is generally 100 shares of stock per contract and the multiplication factor for all equity options currently is 1.3. OCC can change the multiplication factor or impose special margin requirements under special conditions.

Generally, in a customers' or firm non-lien account, OCC nets unsegregated long positions in a series against short positions in that series, and also nets exercises and assignments of the same series. OCC then nets those net positions for each option series within the same option class by using equivalent contract quantities of longs with the same or a later expiration date to offset shorts. The same treatment applies to a firm lien account, a market-maker's account, a specialist's account or a combined market-makers' or specialists' account, except that for these accounts a margin credit in one options class can be used (subject to a deduction) to reduce margin requirements for other classes of options carried in the account.

OCC's NEO margin system uses options price theory to project the cost of liquidating a member's portfolio of positions in the event of an assumed "worst-case" change in the price of the underlying asset or index. The margin requirement or credit for options on the same class equals the premium plus (in the case of a negative liquidating value) 102/ or minus (in the case of a positive liquidating value) the "additional margin" amount for that class group. Additional margin is calculated by determining assumed maximum one-day price movements in the underlying assets (the "margin interval") 103/ and projecting the effect of such movements (up, down, and at any exercise price falling in between) on the liquidating value of the positions on the basis of options pricing models. 104/ An upside projection reflecting an increase in liquidating cost, or a downside projection reflecting a decrease in liquidating value, results in a clearing margin requirement. To provide additional protection, the per-unit cost of liquidating out-of-the-money short call positions in the upside projection and short put positions in the downside projection is presumed to increase by a minimum of 25% of the margin interval. For example, the minimum margin requirement on deep out-of-the-money short index options would be $500 if the margin interval was 20 points.

OCC margin requirements can be satisfied in several ways. OCC accepts cash, government securities, letters of credit, and valued securities. Eligible valued securities are provided clearing margin credit at one-half their current market value (computed daily). 105/ To the extent that clearing margin on deposit exceeds the clearing margin requirement for a particular day, the excess is refundable upon request by the clearing

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102/ The liquidating value is OCC's estimate of the proceeds or loss OCC would realize if it liquidated the position.

103/ Historical volatilities are built into the system and are updated on a daily basis. OCC's margin interval is set at a level where, based on historical rates of change, a close-to-close change in underlying asset value greater than the interval would occur less than 5% of the time. See, infra, at Section C.5 for a discussion of OCC's changes in certain margin intervals before and during the market break.

104/ See Securities Exchange Act Release No. 23167 (April 22, 1986), 51 FR 16127, in which the Commission approved OCC's NEO margin system.

105/ Eligible valued securities are common stocks having a market value greater than $10 per share that are either traded on a national securities exchange or traded in the over-the-counter market and designated as National Market System Securities pursuant to Rule 11Aa2-1 under the Act. Stocks of any one issuer can not be valued at an amount in excess of 10% of the margin requirement in the account for which such stocks are deposited.

member. Many clearing members leave excess margin with OCC to reduce liquidity problems in the event OCC issues a variation margin call. 106/

2. Options Market Volume and Statistics

OCC issues, clears, and settles over one million equity and NEO contracts (trades) per day. In December 1986, average daily contract volume was 966,000; by September 1987, average daily contract volume was 1,291,000. During the month of October 1987, when all markets were experiencing extraordinary volume, OCC's daily contract volume averaged approximately 1.5 million with an average of 13 contracts per transaction. 107/ On October 16, OCC cleared a record 3,137,619 option contracts. As discussed below, OCC pledge activity also increased during the month of October.

a. NEO

NEO options, i.e., stock index, foreign currency, and interest rate options, accounted for approximately 43% of the total cleared contract volume of 32,513,049 for the month of October. During October, OCC cleared 12,804,165 index option contracts, 1,176,518 foreign currency option contracts, and 8,516 interest rate option contracts.

Index options 108/ account for over 90% of NEO volume. In October, OCC cleared 12,804,165 index options contracts, averaging 582,008 contracts per day, with an average premium of $765.41 per contract. These figures were up from May 1987 when OCC cleared 9,821,353 index option contracts for an average of 491,068 per day, with an average premium of $404.12.

The most active stock index option is the OEX traded on the CBOE. In October, OCC cleared 9,923,049 OEX contracts (representing 77.5% of all the index options

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106/ Unlike unexercised options, futures contracts always entail mutual obligations. One party must deliver a commodity, or cash in lieu of a product (or a basket of products), whose value generally fluctuates daily; the other party must pay for that product upon delivery at the contract price. Because the obligations are mutual and complementary, it is possible to mark each party's obligation to the market each day and pass through the marks-to-the-market to the contra party, thereby reducing potential exposure from default, and reducing settlement obligations on expiration to the latest mark, or facilitating close-outs through offsetting transactions.

107/ See Table 10-12 for statistics concerning OCC equity and stock index options.

108/ Options are traded on the S&P 500 ("SPX") and the S&P 100 ("OEX") on the CBOE; the Major Market Index ("XMI") on the Amex and the European Options Exchange ("EOE"); the Institutional Index ("XII"), the Computer Technology Index ("XCI"), and the Oil Index ("XOI") on the Amex; the New York Composite Index ("NYA") and the Beta Index ("NBH") on the NYSE; the Value Line Index ("XVL"), the Gold and Silver Index ("XAU"), the Utility Index ("UTY"), and the National OTC Index ("XOC") on the Phlx; and the Financial News Composite Index ("FNCI") on the PSE.

traded), with an average premium per contract of $700.29, for premiums totaling $6,949,006,032. 109/

b. Equity Options

Volume in equity options also increased in October 1987, up from 12,696,088 cleared contracts in May 1987 to 18,523,850 in October. 110/ Daily volume averaged 841,993 contracts and the average premium per contract was $339.28. On October 16, Amex, Phlx, and PSE experienced record volume in equity options with 495,200, 187,224 and 201,214 cleared contracts on each of the respective exchanges. On that day, CBOE equity option volume was 659,144, just below its record volume of 666,457 set on October 12, 1987. 111/

c. Pledges

During October 1987, OCC members pledged 375,407 equity options contracts valued at over $300 million, primarily to three pledgee banks. Several OCC members that provide clearing services to other broker-dealers accounted for the bulk of that activity. For NEO options, OCC members pledged 26,944 contracts valued at over $50 million.

OCC's options pledge program provides one method for clearing members to obtain funds. 112/ Although long options can be used to offset OCC margin requirements, 113/ and thereby free up funds, unpaired long options also can be pledged as collateral for loans. 114/ The program also can be used in conjunction with DTC's pledge system to

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109/ See Table 10-13 for a breakdown by account type of OEX and other actively-traded stock index options.

110/ Of the total number of cleared equity option contracts in October, approximately 44% of the trades occurred on the CBOE, 33% on the Amex, 12% on the PSE, 10% on the Phlx and 1% on the NYSE.

111/ In contrast, during May 1987, average daily contract volume on the Amex was 204,356; on the CBOE, 291,161; on the Phlx, 62,558; and on the PSE, 68,340.

112/ Long options paired with short options of the same series and strike price negate any OCC margin requirements. For unpaired long options, OCC gives margin credit equal to 35% of their in-the-money value. At the same time, Commission net capital provisions would haircut those options by 50%, thus giving 50% of the in-the-money value as credit for capital purposes. Under Regulations T and U, long options cannot be used as margin equity. Thus, for clearing members with unpaired long options and excess margin on deposit with OCC, a pledge of those options for financing can be the least expensive method of raising funds if lenders are willing to haircut long options by less than 50%.

113/ See OCC Rule 601(b)(4).

114/ The Division is concerned, however, over the unwillingness of at least one bank that had previously accepted long options as collateral to accept these pledge positions during the October market break. Although volatility concerns about

provide lenders with collateral consisting of long securities positions hedged with long put options that protect against market price declines.

3. OCC Services During the Market Break

OCC's systems were tested by the unprecedented market decline and record trading volumes experienced in the markets during the month of October. Despite substantial increases in volume, OCC generally met all routine processing standards and distributed reports within established time frames. 115/ Activity in specialized services, such as the escrow receipt program, increased during the month but OCC's systems handled the increased activity without event. As discussed in detail below, market price volatility forced OCC to change dramatically its margin intervals and to call for substantial variation margin.

OCC experienced problems during the week of October 19 in obtaining and verifying daily options marking prices and daily last-sale price information from its three price reporting vendors. 116/ Pricing is critical to OCC's operations, both for calculating margin requirements and for valuing securities held as margin. During the week of October 19, OCC reported abnormally high incidences of missing price records and records with a marking price less than the option's intrinsic value. 117/ In addition, as a result of the market's overall decline, the options markets added over 6,000 new option series, many of which were not reported by OCC's price-reporting vendors. Consequently, OCC had to obtain last-sale reports from the options markets and correct manually over 5,000 marking prices during evening processing on the 20th and 21st. 118/

OCC took a number of steps to respond to pricing problems. For example, during the week of October 19, OCC converted to a new primary vendor who was providing the timeliest new series inclusions. OCC also enhanced its price editing programs to identify errors and obtained last sale reports from options markets to verify other services. Moreover, as a result of the problems experienced in October, OCC is taking steps to reduce its reliance on outside pricing vendors.

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these positions may be greater than for many stocks, long put positions clearly had substantial value during the market break.

115/ During the month, however, settlements were delayed a number of times, as discussed below. OCC also received several late reports of matched trades from options markets. Even the latest reports, however, were received within 40 minutes of OCC's 2:00 a.m. deadline and OCC position and margin reports were distributed to members in advance of OCC's 8:00 a.m. report distribution standard.

116/ See Chapter Eight for a detailed discussion of the problems encountered by price reporting vendors during the market break.

117/ For example, on October 23, the SPX December 350 put was marked at $1,400 per contract. This marking price was obviously in error since the option was 102 points in-the-money at the time (equivalent to $10,200 per contract).

118/ Prior to the market break, OCC price corrections averaged 300 per day.

4. Settlement

On October 19, 20, and 21, OCC received late payments from certain members and on October 20, OCC delayed, by two and one-half hours, payments to all members due to receive funds from OCC. Moreover, instructions to OCC clearing banks and bank payments to OCC for variation margin were delayed a number of times during the market break. It appears, however, that most of those delays were due to delays in OCC and bank operations processing or otherwise were consistent with OCC's contractual relationships with its clearing banks. In several instances, however, OCC contends that bank payments had been withheld or reversed in a manner inconsistent with or not covered by those contractual relationships. The following discussion describes OCC money settlement procedures, OCC clearing bank obligations, and the settlement problems during the market break.

Currently, OCC maintains clearing accounts at 15 clearing banks. OCC requires members to establish and maintain bank accounts at one of these banks and to authorize the bank to make debits and credits to the member's account in accordance with OCC's instructions. OCC calculates daily each member's net money settlement for all OCC activity. Members' net obligations to OCC ("Pays") are settled at 10:00 a.m. when the clearing bank makes a transfer from the member's bank account to OCC's account at that bank. OCC's obligation to members ("Collects") are settled at 11:00 a.m. by a transfer from OCC's account at the clearing bank to the clearing member's account at that bank. Pays and Collects are made in immediately-available funds. 119/

Under OCC's contractual agreements with OCC clearing banks, OCC is obligated to deliver debit or credit settlement instructions to OCC clearing banks at least one hour before applicable settlement times. For variation margin, OCC also must notify clearing banks of the settlement time. OCC clearing banks are obligated to notify OCC prior to the applicable settlement time if any settlement instructions are to be dishonored. Absent such notice, clearing banks are required to make debits and credits according to OCC's instructions and those debits or credits are deemed by the contract to be final at the earlier of the time they are made or when confirmed to OCC, which must occur within 30 minutes of settlement. 120/ In the futures markets, on the other hand, it is unclear whether confirmation to the clearing organization represents a binding commitment by the settlement bank to honor its clearing member customers' obligations.

Because clearing banks are obligated to notify OCC prior to settlement if they intend to dishonor OCC's instructions, OCC clearing banks were forced to make

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119/ See Securities Exchange Act Release No. 23601 (September 5, 1986), 51 FR 32707, which approved an OCC proposal to effect all money settlements in immediately-available funds.

120/ Those agreements also provide for delayed settlement if OCC fails to deliver settlement instructions one hour before settlement time. Under those circumstances, clearing banks are obligated to use their best efforts to complete settlement by settlement time, but the clearing banks are not obligated to effect settlement until one hour after settlement instructions are received from OCC. Variation margin calls are not accepted by clearing banks after 3:00 p.m., except with the consent of the bank.

decisions related to their lending relationships with OCC's clearing members during the week of October 19. On several occasions during the week, OCC clearing members had inadequate funds in their clearing bank accounts to satisfy OCC debit instructions. At the same time, the clearing banks were unable to establish whether OCC clearing members could immediately transfer the necessary funds to the bank. As a result, the clearing banks were forced to decide whether to allow clearing members to overdraft their accounts, or to refuse to pay OCC and risk OCC declaring those members in default and OCC liquidating their options positions. 121/

Interviews by Division staff with a number of clearing banks indicate that, in most cases, the clearing banks extended credit to OCC clearing members with which the banks had preexisting relationships. This involved a significant extension of daylight overdrafts, but all of the clearing banks with whom staff members met indicated that their borrowers had repaid these overdrafts by the end of the day by substituting letters of credit to satisfy margin obligations. 122/ Indeed, several of the banks indicated that once their borrowers reached the limits of the advance rate generally extended to them, the banks, after some consideration, extended their advance rates as much as 100% in some instances in order to ensure that their clearing firm customers were able to meet their settlement obligations and margin calls.

Although most banks responded to the credit needs of their customers, on a number of occasions during the week of October 19, established time frames were not met and settlements were delayed while counterparties verified that clearing members' accounts would receive a transfer of funds by Fedwire. Specifically, on October 19, one New York clearing bank delayed confirmation of payments to OCC for three clearing members that owed OCC approximately $4 million. OCC also delayed payments to collecting clearing members at that bank. Pays and Collects with that bank were completed approximately two hours after the market opened (approximately 90 minutes after OCC's normal settlement time). 123/

During the day on the 19th, OCC made four variation margin calls on its clearing members at 11:00 a.m., 1:00 p.m., 3:30 p.m., and 5:30 p.m. Clearing members generally are given one or two hours to line up collateral before debit instructions are delivered to the clearing banks. On the 19th, by the time debit instructions were generated in OCC's New York office for delivery to clearing banks for the first variation margin call, a second variation margin call had been issued. OCC determined to combine the two and deliver one set of debit instructions to the clearing banks, and called the clearing banks for extensions of the normal cut-off time for acceptance of variation margin calls. However, when debit instructions for the combined first and second margin calls

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121/ As discussed in Chapter Five, certain clearing firms experienced liquidity problems because some options market-makers whose accounts they carry withdrew excess capital held by the clearing firms.

122/ During the week of October 19, the five largest issuers of letters of credit (Bank of America, Irving Trust Co., Bankers Trust Co., First National Bank of Chicago, and Continental Illinois National Bank) each increased, by approximately $100 million from the previous week, the amount of letters of credit issued to OCC.

123/ Timely settlement is important because OCC must meet its obligation to collecting clearing members by 11:00 a.m.

were generated in New York, a third margin call had been made. Again, OCC determined to combine these instructions with earlier instructions. Consequently, debit instructions for the first three margin calls were delivered together and at least one New York clearing bank did not receive those instructions until approximately 6:30 p.m. 124/ Indeed, most banks had closed before OCC completed the final margin call.

Again on October 20, at least three clearing banks delayed settlement confirmations for two and a half hours, apparently for credit reasons. 125/ OCC also delayed payments to collecting clearing members during that time. Although OCC is obligated to make those payments, because of the continued decline in the market, OCC anticipated making an intra-day margin call and was attempting to complete margin calculations in order to compare margin requirements with credits to OCC members. Additionally, OCC deviated from standard settlement practice and accepted a cashier's check when a clearing member's clearing bank would not honor OCC's draft. 126/ On October 21, morning settlement was delayed for approximately thirty minutes because of a credit-related delay by one clearing bank. As a result of these problems, OCC is confirming its agreements with settlement banks with respect to the procedures for handling cash settlements.

5. Margin and Options Settlements During October 1987

Throughout the weeks of October 12, 19, and 26, OCC called for substantial amounts of cash and other collateral from clearing members through various forms of margin calls to reduce the risk associated with the market's increased volatility. Under OCC's NEO margin system, as market volatility increased, the range of prices over which underlying securities are expected to trade continually changed, prompting OCC to increase margin intervals (and consequently, margin levels) for all stock index options a number of times during the month. For example, OCC increased the margin interval for the OEX from 7.0 points (which translates into a maximum margin requirement equal to the option premium plus $700 per uncovered short position) to 8 points on October 15, to 10 points on October 16, to 16 points on October 19, and to 20 points on October 21. 127/ Although OCC has the authority to increase the multiplication factor for equity options, it has remained at 1.3. In addition, as the stock market continued to decline, so too did the prices of valued securities that OCC accepts for clearing margin purposes, thus generating even greater clearing margin requirements.

124/ OCC contends that the bank confirmed all settlement instructions after 7:00 p.m. that evening. With respect to one clearing member now in SIPC liquidation, the bank claims to have confirmed a debit instruction for approximately $2.4 million only to the extent of $584,000 (the amount of funds in the clearing member's account). The remaining $1.8 million currently is in dispute.

125/ The Division understands that the Fedwire shut down in Chicago from 11:00 a.m. to 1:30 p.m. because of a computer problem. Although this may have contributed to the settlement delays, the extent to which the shut down affected OCC settlements is unclear at this time.

126/ Thus, OCC was paid in next-day, instead of same-day funds.

127/ See Table 10-14 for a summary of changes in futures margin.

During the week of October 12, when the margin interval on the OEX was 7.0 and 8.0 points, OCC issued intra-day margin calls 128/ on October 14, 15, and 16 for $98 million, $2 million, and $240 million respectively. 129/ All variation margin calls were met and, as of the close of business on October 16, OCC held $4.2 billion in margin deposits against total clearing margin requirements of $3.3 billion, 130/ providing excess collateral of approximately $900 million.

On October 19, OCC issued four margin calls totalling $1.2 billion. OCC collected approximately $586 million in cash; $424 million was met by excess margin already on deposit. 131/ At 11:00 a.m., with the DJIA down 200 points and the OEX down 20 points, OCC issued the first of its four variation margin calls. 132/ As the market continued to decline on October 19, OCC made three additional margin calls at

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128/ Generally, an intra-day call is made when the market moves through a predetermined parameter. For equity options, OCC makes intra-day variation margin calls based on movements in the S&P 500 Index. Generally, each 1.25% move in that Index generates a margin call. For example, OCC makes a first level intra-day variation margin call whenever the S&P 500 Index has moved by more than 1.25%, and a second level margin call whenever that Index has moved by more than 2.50%. For index options, OCC makes intra-day variation margin calls based on movements in either the underlying index within a product group or the option prices themselves. OCC makes a first level call for a particular product group whenever either the underlying index has moved by more than 75% of the current margin interval, or the option prices have moved by more than 75% of their projected theoretical values. For example, OCC called for variation margin when the OEX moved 15 points and the margin interval was 20 points. OCC makes a second level call when the underlying index has moved by more than 100% of the current margin interval, or the option prices have moved by more than 100% of their projected theoretical values.

129/ Variation margin requirements are expressed in gross figures based on all open positions at OCC. To the extent that a clearing member has excess margin on deposit, the aggregate amount of the intra-day variation margin call is reduced accordingly.

130/ The $4.2 billion in margin deposits was composed of approximately $2.9 billion in letters of credit, $1.1 billion in valued securities (only 50% credit given against $2.2 billion in valued securities on hand), $108.5 million in government securities, and $33.5 million in cash. See Table 10-17 for a breakdown of margin deposits, composition of margin, and margin requirements for the period during the October market break.

131/ The Chicago Mercantile Exchange ("CME") (which represents approximately 75% of the volume in stock index futures) had collected over $2.5 billion in variation margin that day. See Table 10-15 for a comparison of OCC, CME, and Board of Trade Clearing Corporation ("BOTCC") variation margin.

132/ Although a drop of 7.5 points in the OEX triggered an intra-day variation margin call, under normal circumstances OCC would make the call at noon. Due to the market's precipitous decline, however, OCC determined to make the first call at 11:00 a.m.

1:00 p.m., 3:30 p.m., and 5:30 p.m. for a total of $1.2 billion in variation margin calls that day. 133/ With respect to the final margin call for $273 million, in most cases, the OCC clearing banks had closed before OCC's drafts on clearing member accounts could be submitted. Consequently, OCC cancelled this last call and collected those margin requirements in morning settlement on October 20.

On the morning of October 20, OCC drafted its clearing members for a total of $898 million in settlement obligations, which included outstanding margin requirements from the previous day. With the exception of a debit settlement instruction in the amount of $6.6 million for a defaulting clearing member, as discussed below, all clearing members met their morning settlement obligations. Around mid-day, with the DJIA up 87 points, OCC made an intra-day margin call for $466 million. By late in the afternoon that call had been met. Overnight, clearing members had been able to line up collateral so that OCC drafted clearing members for only approximately $40 million. The majority of that call was met by increases in letters of credit, and with government securities and valued securities. 134/

On the morning of October 21, clearing members owed OCC a total of $280 million for morning settlement. OCC held $6.2 billion in margin deposits against total margin requirements of $5 billion, leaving an excess of $1.2 billion in margin on deposit. OCC again made an intra-day margin call on October 21. Of a total call for $272 million, approximately $74 million was met through drafts on clearing banks, and the remainder through excess margin on deposit and increased letters of credit, government and valued securities. 135/ Given the sustained high volatility, OCC elected to increase margin intervals at this point, e.g., the margin interval on the OEX was increased from 16 to 20 points. OCC made no variation margin calls on October 22 or 23. Although the equity parameter 136/ was broken, OCC clearing members had sufficient excess margin on deposit.

6. OCC Clearing Member Financial Difficulties

During October 1987, several OCC clearing members experienced severe liquidity and financial difficulties that required special OCC attention and management. The filing of an application on October 20, 1987, to liquidate Shaine, an OCC clearing member, resulted in OCC's closing out Shaine's open positions that day, at a loss of $8.5 million. In accordance with OCC's rules, OCC allocated that loss pro rata among OCC's clearing members. This represents the first time members of a clearing agency have been assessed pro rata for losses occasioned by a member's default.

133/ According to OCC, the first three calls were met in their entirety, although one clearing bank denies confirming a debit instruction on a clearing member's account in the amount of $1.8 million.

134/ See Table 10-16 and 10-17 for OCC margin deposits, composition, and requirements during the month of October. On October 20, the CME collected variation margin totaling over $900 million.

135/ The CME collected over $1.5 billion in variation margin on this day.

136/ See discussion, supra, regarding OCC's procedures for margin calls.

Moreover, one clearing member experienced difficulty marshalling assets to meet OCC margin and settlement obligations (as well as futures margin and settlement obligations) on behalf of its customers. That firm clears (on an omnibus basis) for approximately 1,200 specialists, market-makers, and other broker-dealers. At least two other OCC clearing members experienced similar difficulties.

a. Shaine

On October 19, OCC, CBOE, and NYSE monitored closely Shaine's financial condition because of its difficulty meeting settlement obligations and its substantial market exposure on OEX put options. Before the start of trading on October 20, the NYSE and SIPC notified OCC that Shaine was being placed in SIPC liquidation. Consequently, OCC cancelled a debit settlement instruction in the amount of $6.6 million representing Shaine's margin deficit and other settlement obligations and suspended the firm. Appropriate notifications were sent to correspondent clearing corporations (e.g., NSCC), participant options markets, the SEC and OCC's clearing membership. In accordance with its rules 137/ and by-laws, OCC converted margin and clearing fund deposits to cash, 138/ netted open positions, and entered market orders with OCC's broker-dealer liquidation agent to close out Shaine's remaining open positions. All open positions were closed out by the close of business on October 20, 1987. OCC sustained an $8.5 million loss on the liquidation: $1.8 million currently in dispute with a settlement bank and $6.7 million in losses resulting from the purchase of long put positions.

As discussed in Chapter Five, the primary reason for Shaine's failure appears to be the activity of several customers writing naked OEX put options. Although Shaine was able to cover its margin requirements from October 16 in its morning settlement with OCC on October 19, the fall in the OEX on October 19 created margin calls that Shaine and its customers could not meet.

As noted above, the pro rata assessment of OCC clearing members represents the first time any clearing agency's members have been assessed for a member's default. In proportion to Shaine's aggregate margin requirements on the date of suspension, 99.25% of the loss was charged to the NEO clearing fund and 0.75% to the equity clearing fund.

b. Other Firms Suffering Financial Difficulties

Several OCC clearing members, although they did not become insolvent, experienced severe liquidity constraints during October 1987. One of those firms, First Options, is a clearing agent for options market-makers, specialists, and registered traders; First Options cleared for approximately 1,200 of such entities during October 1987. 139/ On October 19, OCC called for a total of approximately $31 million of

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137/ See OCC Rules, Chapter XI.

138/ At that time OCC held $5,614,279 in margin for Shaine; $4,614,279 in cash and $1,000,000 in a letter of credit. Shaine's clearing fund contribution totalled $74,330 in the form of treasury securities.

139/ Excepting five fully-disclosed separate accounts, the firm cleared those accounts through combined or omnibus accounts.

intra-day variation margin from First Options through four separate calls. 140/ Three calls were met by the firm on October 19, and the fourth call was met on October 20. 141/

On October 20, First Options paid an OCC net money settlement debit of approximately $62 million and during the day met a variation margin call of approximately $1.2 million. 142/ On October 21, First Options paid an OCC net settlement debit of approximately $27 million. During that day, an intra-day margin call for nearly $50 million based on equity and index options positions was made. First Options telephoned OCC and explained that it would be unable to meet the call but was reducing open positions and probably would have a Collect from OCC the next day. OCC sent representatives to First Options to satisfy itself that positions were being reduced and OCC subsequently cancelled the variation margin call.

First Options faced further liquidity problems on October 22 when a lender called for a substitution of collateral. As discussed in Chapter Five, First Options had pledged $250 million in long put options to the lender, which the lender demanded be substituted with an equivalent value of long stock positions. Based on a release from pledge that OCC received from the bank with respect to the long options, OCC recomputed First Options' margin requirement that day and no draft against the firm's account was required. The firm agreed not to open new accounts without OCC's approval.

Another OCC clearing member experienced liquidity problems and also net capital deficits during October 1987. That firm, Fossett, also acted as a clearing firm for approximately 160 accounts (cleared on an omnibus basis) and maintained 33 proprietary accounts. On October 20, OCC learned that the firm had net capital deficits143/ resulting from trading losses and activity on October 19 and that its proprietary trading accounts had been placed on a liquidating-only status by the CBOE, the firm's DEA. OCC received assurances from Fossett, however, that it expected to be in capital

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140/ The bulk of that total represented calls on foreign currency options market-maker accounts, index options, and equity options.

141/ On October 16, OCC held approximately $322.6 million of margin for First Options (composed of approximately $316 million in letters of credit, $6 million in Treasury securities, and $600,000 in cash) and $57.7 million in clearing fund deposits (composed of $20 million cash and $37.7 million in Treasury securities). By the end of the day on October 19, OCC held approximately $373 million in margin for First Options. First Options' collateral composition changed through an addition of $87 million in cash and a decrease of $37 million in letters of credit.

142/ The clearing firm's total margin for October 20 was approximately $377 million with a change in composition from the prior day through an $88 million reduction in cash and a $92 million increase in letters of credit.

143/ According to OCC, the estimates it received indicated that the firm's net capital deficit could have been $10 million. See Chapter Five for a description of that firm's capital positions during October 1987.

compliance by the next day. 144/ OCC placed the firm on special margin status (130% of normal margin requirements) effective October 21. 145/

On the morning of October 21, Fossett's clearing bank informed OCC that the bank would not honor a $3.1 million variation margin call on the firm. 146/ OCC staff analyzed the risks posed by the firm in relation to the approximate $12.5 million in collateral OCC held and determined to relieve the firm of its obligation to meet the variation margin call. OCC later learned that the firm faced a $30 million settlement at NSCC related to the return of stock loaned by the firm to another broker-dealer. That information was not available readily to OCC when it made its decision to relieve the firm of the margin call. 147/ Although the NSCC settlement was made, OCC again placed the firm on 130% margin status on October 23 and imposed a number of additional restrictions on the firm. 148/ Since that time, the firm has met all OCC obligations.

The third OCC clearing member that experienced unusual liquidity problems during the market break was engaged in proprietary activity in both the securities options and financial futures markets ("Firm"). Before and during the week of October 19, the Firm had accumulated large options and futures positions in a variety of index products. 149/ Those positions triggered greatly increased margin requirements that drew down the Firm's liquid assets. 150/ On Monday, October 26, the Firm faced a margin deficit of $10 million to OCC. It appeared at that time that the Firm could not obtain additional financing and OCC was forced to consider the risks and disruptions of liquidating the

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144/ Estimates indicated that the firm had approximately $3.5 million in capital as of October 22. See Chapter Five.

145/ On October 19, 20, and 21, OCC held approximately $10 million of margin for the firm and approximately $2.5 million in clearing fund deposits.

146/ The firm's normal margin call requirement would have been approximately $2.4 million, but was subject to OCC's special margin status requiring 130% of that amount.

147/ Stock loan activity, unlike stock purchase and sale transactions, generally is not handled by centralized clearing agency systems, but is done on a case-by-case basis between the parties to the loan through miscellaneous deliveries at clearing agencies. As a result, clearing agencies and other SROs cannot readily determine the nature and extent of broker-dealers' stock loan obligations.

148/ Those restrictions included: reporting to OCC daily capital computations; special financial reporting requirements; capital restrictions; and a prohibition against the firm opening new accounts without OCC's consent.

149/ Those positions included significant percentages of total open interest in the Value Line Index, NYSE Composite Index, and the Financial News Composite Index.

150/ The Firm's margin requirement at OCC progressed as follows (in approximate amounts): October 1 - $1.3 million; October 9 - $8 million; October 16 - $13.8 million; October 19 - $28 million; October 26 - $35.8 million; October 27 - $45 million. On October 19 and 20, the Firm paid intra-day variation margin at OCC in the amount of $5.6 million and $6.7 million, respectively.

Firm against the risks of maintaining the Firm's positions without the additional $10 million in margin. 151/

OCC's analysis indicated that a significant amount of the Firm's options and futures positions were in the nature of intermarket hedges at OCC and its futures clearing organization subsidiary, the Intermarket Clearing Corporation ("ICC"), such that any losses in one market would be offset by gains in other markets. In sum, although certain positions created exposure and margin requirements, other positions provided economic justifications for reduced margin as long as the hedge was maintained. OCC also determined that the size and nature of the Firm's positions could create market-wide disruptions if liquidated. Pursuant to its authority under new Rule 609A, 152/ and after consultation with Division staff, OCC determined to waive the clearing member's required margin. OCC thereafter entered into an agreement with the clearing member whereby the member agreed that OCC could transfer funds between its OCC and ICC bank accounts. Pursuant to this agreement, on October 27, $8.9 million was transferred from the Firm's ICC account to its OCC account. On October 28, after the market had reversed, an excess in the OCC account was transferred to the ICC account to meet an ICC variation margin call. OCC thereafter worked with the Firm to raise capital and transfer positions to other firms. These efforts resulted in a considerable reduction of the Firm's positions, with two major firms assuming a number of open positions of the Firm.

7. Analysis

a. Summary

Every aspect of OCC's clearing operation was tested rigorously in October 1987, more so than at any other time in its history. In one instance, OCC suffered an $8.5 million loss as a result of the liquidation of Shaine and assessed that loss against its participants. In at least three other instances, OCC management 153/ confronted the real possibility of significant participant defaults and acted to assist those members in maintaining sufficient liquidity to avoid OCC's liquidating their options positions.

151/ At that time OCC held approximately $35 million in margin for the Firm and $2.7 million in clearing fund deposits.

152/ On October 22, 1987, OCC filed, and on October 23, 1987, the Commission approved on an accelerated, temporary basis, a change to OCC's rules that authorizes OCC, in unusual circumstances, to adjust margin requirements for particular OCC clearing members encountering liquidity problems. See Securities Exchange Act Release No. 25059 (October 23, 1987), 52 FR 41645.

153/ OCC's management is responsible for implementing OCC systems and safeguards and making a variety of judgments in response to daily events. To implement safeguards, OCC management must react at appropriate times, for example, to change margin intervals or impose appropriate special conditions on members. OCC management also must decide in a crisis when it must suspend a member and how OCC can best manage that member's assets to minimize losses. Finally, OCC management must interact with clearing member, bank, and other SRO managements.

Despite those difficulties and the relatively minor loss, on balance, the Division believes OCC performed exceptionally well during this period of unprecedented volume and price volatility in a product which by its nature provides large exposure during volatile market conditions. Nevertheless, OCC, its members, the options markets, and Division staff should re-examine all aspects of OCC's operations to re-affirm their adequacy or identify changes needed in response to events in October 1987.

OCC's management has identified several improvements that have been or may be implemented. For example, in response to pricing problems, OCC is taking a number of steps to reduce the chance of recurring problems. Moreover, as discussed below, OCC plans to enhance its member monitoring to improve its ability to detect excessive position concentration in relation to each member's financial strength or market size and liquidity, and also to improve its ability to monitor members' borrowing power.

Additionally, OCC has filed or discussed with the Division several proposed rule changes that would enable OCC to manage more effectively, or prevent, clearing member difficulties such as those encountered during the market break. As discussed above, during the market break, OCC filed and the Commission temporarily approved an OCC rule change that gives OCC broad authority to take extraordinary action under unusual market circumstances. The rule change enables OCC, upon prior consultation with the Division, to waive clearing member margin requirements when it is advisable in the interest of maintaining fair and orderly markets or is otherwise advisable in the public interest or for the protection of investors. As discussed above, OCC used this authority once during October 1987 to relieve a clearing member of a margin deficit totalling $10 million. Because of the clearing member's severe liquidity problems and an effective hedge in another market, the Division agreed with OCC that relief was warranted. Nevertheless, the Division is continuing to study the implications of such authority and to assess the extent to which OCC should have permanent ability to provide extraordinary relief in crisis situations.

On December 11, 1987, OCC filed a proposed rule change with the Commission that, if approved, would increase OCC's flexibility to manage clearing member defaults and liquidity problems. Under current OCC rules, OCC is restricted, generally, to liquidating clearing member positions in the event of clearing member default or insolvency. Among other things, the proposal would authorize OCC to hedge a defaulting member's open positions and carry those positions until expiration. Because of the size and nature of some positions, e.g., where an option position represents a significant proportion of total open interest, it may be impossible or inadvisable to liquidate that position.

Although the Division has not completed its review of these proposals, the proposals demonstrate OCC's commitment to take necessary steps to enhance its ability to deal safely with more volatile markets. Nevertheless, the Division believes a number of areas deserve further review.

b. Margin

OCC's use of options pricing models 154/ attempts to provide the most accurate

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154/ See, e.g., J. Cox & M. Rubenstein, Options Markets (1985); R. Jarrow & A. Rudd, Option Pricing (1983).

estimate of the risk of each options position and assesses margin accordingly. 155/ The Division continues to believe that OCC's NEO margin system is a reliable method of risk measurement and tends to avoid overmargining or undermargining that can occur with flat percentage-based margin requirements. Nevertheless, OCC should reassess its NEO margin system in light of volatility experienced during and after October 1987 to assure itself, its members, and the Division that the NEO margin system works adequately in volatile markets such as occurred in October 1987.

As discussed above, OCC's NEO margin requirements are based on measurements of historical and theoretical (or implied) price volatility in the options markets and markets for underlying assets. OCC applies those measures to each member's options portfolios to estimate dollar risk and potential liquidation cost. The actual margin requirement for each portfolio each day is the most recent premium plus an additional amount reflecting estimated liquidation costs. OCC tests liquidation values across a range of prices within the margin interval and sets margin at an amount designed to cover the highest liquidation cost. The narrower the margin interval, therefore, the less likely a member's margin will be sufficient to meet potential liquidation costs in a highly volatile market. Wider margin intervals, of course, generally provide for greater member margin requirements but reduce the member's available working capital.

In setting NEO margin, therefore, the margin interval is one critical element. The margin interval is designed to protect OCC from adverse intra-day price moves by collecting margin that covers at least 95% of historical price movements. Because premium margin is marked-to-the-market daily, only a portion of the margin interval generally is required to provide margin that would exceed the intrinsic value of the portfolio given a price change equal to the margin interval. 156/ OCC increases a

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155/ See Securities Exchange Act Release No. 23167 (April 22, 1985), 51 FR 16127.

156/ Equity option margin, like NEO margin, is based in part on option premiums. In both systems, margin is marked-to-the-market daily based on closing ask prices, which reflect the most recent measure of closing out short positions. The second component of equity margin is an amount equal to a flat 30% of the current value of the underlying securities, e.g., 100 shares per option contract. In contrast, the second component of NEO margin is more flexible and floats with OCC's margin interval. For example, an OEX Nov 285 put written on October 23 would have required premium margin of $6,100 and additional margin of $1,250 for a total of $7,350. Additional margin was approximately 5% of the index value. At the close on that day, the option was $4,123 in-the-money and OCC's margin interval was 20 points, which equates to maximum additional margin of $2,000. OCC's additional margin was based on a projection of a 20 point drop in the S&P 100 (which would have put the option at $6,123 in-the-money) and price estimates from options pricing models. At the close on October 26, the following business day, the S&P 100 had dropped 20.13 points and the option premium had risen to $7,800. Generally, OCC's equity margin is higher than NEO margin in relation to the potential dollar exposure on short positions. For example, an IBM Nov 130 put written at the close on October 23 would have required $1,900 premium margin and $3,360 additional margin for a total of $5,260.

particular margin interval if more than three price observations in a three month period exceed the margin interval. 157/

Although the staff believes OCC's NEO margin system is sound, further analysis of the margin intervals appears appropriate. In particular, the 95% coverage level may not be appropriate if the range of historical price movements is sufficiently large to pose substantial exposure to OCC. Accordingly, the Division will review with OCC whether some additional cushion should be built into the system.

The Division is particularly concerned with the exposure to OCC posed by naked short options in volatile markets. Many options portfolios are margined on the basis of offsets between short and long options positions. By using pricing models, OCC can predict certain gains on some positions that will offset exposure on other positions, whether the market moves up or down. In other words, regardless of volatility a certain amount of protection will accrue to OCC without immediate access to additional assets of members. The ability to maintain naked short options, however, depends initially upon OCC's margin interval and dollar margin requirement. When intra-day price movements exceed OCC's margin, the only recourse is to attempt to obtain additional margin during the day through variation margin calls. As illustrated by Shaine, that process will not necessarily provide the needed protection.

As described above, OCC's loss from Shaine resulted from Shaine's concentration in naked short options positions that generated losses far in excess of the firm's and its customers' financial resources. Although OCC demanded greatly increased margin from Shaine via intra-day margin calls on October 19, Shaine simply was unable to pay. Moreover, Shaine's other assets available to OCC were insufficient to cover the initial $8.5 million loss on liquidation.

On the morning of October 19, Shaine paid to OCC (90 minutes after normal settlement time) a net money settlement debit of approximately $960,000. The market opened with the DJIA down significantly (67 points) and OCC began calculating its first variation margin call. By the time OCC had calculated its first variation margin call, the market had fallen to a point where OCC needed to make a second variation margin call. OCC decided that it would recalculate the first variation margin call to reflect that additional market drop and combined its first and second calls into one call. OCC had never before made more than one variation margin call on a single day.

The market continued its decline in the afternoon of October 19, and OCC began calculating its third variation margin call. OCC has indicated that it takes approximately 90 minutes for its systems to price and calculate variation margin calls. OCC staff reported that the combined first, second and third margin call on Shaine were not delivered to Shaine's clearing bank until approximately 6:40 p.m.. Although it appeared on October 19 that Shaine's obligations exceeded its ability to pay, because of the delay in delivering debit instructions to the clearing banks for variation margin calls, Shaine's default was not apparent until late in the day, at which time it was too late to liquidate Shaine's positions.

157/ Thus, on any given occasion, OCC's margin deposits may be inadequate during three of those observations. OCC, however, would rely on members' excess margin and clearing fund deposits.

The Division has begun discussions with OCC to determine what measures can be taken to guard against a similar, or even larger, loss from recurring. In particular, the staff intends to analyze the feasibility of special margin requirements for increased concentrations in customer, or proprietary, accounts. Another alternative might be concentration limits keyed to positions such as uncovered short options that are excessive in light of the OCC member's financial strength. Although those limits can infringe on members' options activity, the Division preliminarily believes that more restrictive limits may be appropriate. The Division will continue to discuss with OCC, clearing members, and other interested parties these and other alternatives. 158/

The Division also believes that a number of improvements should be considered regarding OCC's variation margin process. First, it appears desirable for OCC to deliver debit instructions for variation margin calls to clearing banks at the earliest possible time. Although that priority could result in multiple calls and a greater number of dishonored drafts, it would provide OCC with the earliest possible access to funds and information about member financial difficulties. The failure of Shaine highlights the financial exposure inherent in delaying one margin call in order to combine that call with a second margin call. Second, OCC should consider whether automated means, as opposed to messengers, could be used to transmit call instructions to clearing banks. Third, OCC should consider whether, in highly volatile markets that require a margin call early in the day, a special call should be made before markets close to protect against late-in-the-day volatility and to reflect OCC's potential inability to calculate and collect variation margin after markets close. 159/

c. **Clearing Fund**

The Division continues to believe that OCC's aggregate clearing fund levels,160/ coupled with margin and other safeguards, provide OCC with appropriate overall protection. For example, during October 1987, OCC clearing funds of approximately

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158/ See Chapter Five.

159/ In the last hour of trading, between 3:00 p.m. and 4:00 p.m., on October 19 the DJIA dropped approximately 214 points or 42% of the total 508 point drop for the day. That dramatic volatility in the last hour of trading posed special problems for OCC. Because OCC's clearing banks generally cut off variation margin calls at 3:00 p.m. and it takes 90 minutes to calculate variation margin calls, it is virtually impossible for OCC to calculate and collect variation margin reflecting volatility during the final several hours of trading. As a result, OCC must wait until the following morning's settlement to collect that margin.

160/ OCC's clearing funds provide a contingency safeguard, in addition to OCC's other protections, in the form of required deposits of assets by each member in relation to its OCC activity. Specifically, the minimum continuing contribution for each member is $10,000 for the stock clearing fund and $50,000 for the NEO clearing fund. Those minimum requirements are increased to the extent exceeded by an amount equal to 7% of the member's average daily margin requirements for equity or NEO options during the preceding month. OCC's clearing fund contributions must be in the form of cash or U.S. government securities. During October 1987, OCC held approximately $331 million of assets in its clearing funds.

$331 million exceeded the total settlement debits of all members on all but three settlement days. 161/ On those three days, however, OCC held over $5 billion in member assets, including margin deposits. Moreover, on each day during October 1987, OCC clearing funds of approximately $331 million exceeded the total settlement credits of all members.

Although OCC's aggregate clearing fund assets are substantial, the clearing fund contribution of each member plus its margin deposits and other assets determine whether other OCC members' clearing fund deposits will be assessed after the suspension and liquidation of a defaulting member. OCC's aggregate clearing fund enables it to obtain quickly funds needed to cover the default of individual members. If a defaulting member's positions liquidate to a loss after exhaustion of all assets including clearing fund contributions, OCC must absorb the loss itself or assess non-defaulting members pro rata, who must restore their clearing fund deposits to required levels.

In connection with its reassessment of overall protections, the Division believes that OCC should consider whether any modifications are needed to its clearing fund requirements. In the case of Shaine, for example, OCC held a clearing fund deposit of approximately $74,000, indicating average daily margin requirements for Shaine during September 1987 of approximately $1,057,000. Shaine's margin requirements like many OCC members' margin requirements, rose dramatically during several weeks, in October compared to averages during September. 162/ Corresponding increases in clearing fund deposits, however, are not collected until after the end of the month. OCC should consider whether mandatory additional clearing fund contributions callable on demand or within a specified number of hours or days notice are appropriate when a member's current margin requirements exceed significantly levels from the preceding month. Although such a requirement, at times, could strain member resources (if the contribution were collected in immediately available funds on short notice or if demanded at the same time as significant variation margin), those deposits would increase OCC's protection and provide early warning of member difficulty. 163/

161/ For most days during October, total debits of OCC members ranged from approximately $60 million to a high of $280 million. Total OCC debits exceeded clearing fund levels, however, when those debits, including variation margin calls, reached approximately $1.1 billion on October 19, $898 million on October 20, and $360 million on October 26.

162/ Shaine's margin requirements increased during the week of October 12 from $985,000 on October 12, to $1.4 million on October 14, and to $3.2 million on October 16.

163/ The Division intends to discuss with OCC the advantages and disadvantages of mandatory intra-month clearing fund requirements versus discretionary margin increases or clearing fund requirements. Although mandatory intra-month clearing fund requirements based on greatly increased margin requirements could be calculated automatically, that approach would not necessarily provide flexibility, which may be desirable. Discretionary margin or clearing fund requirements would provide more flexibility, but could impose burdens on OCC management. In addition, it must be considered that clearing fund contributions currently must be made in cash or government securities, whereas margin deposits also can be

d. Member Monitoring

OCC incorporates its financial data on members, members' positions, and options pricing systems into an on-line system termed Concentration Monitoring System ("System"), which measures dollar risk exposure posed by each member. Currently, the System measures two types of concentration risk. First, it identifies when underlying security prices have changed in an amount that exceeds OCC's margin interval. The System then recalculates the liquidating cost or exposure posed by that member and expresses that exposure as a percentage of the member's capital strength. That capability enables OCC to determine when to make intra-day margin calls and provides early warning of potential member difficulties. For example, late in the week of October 12, OCC's monitoring system indicated that Shaine's potential exposure exceeded the firm's net capital. At that time, OCC began conversations with the NYSE, Shaine's DEA, and learned that Shaine's concentration in short options represented the activity of approximately 70 public customers. Second, the System measures a member's diversification by expressing the number of positions contained in any one portfolio as a percentage of all open positions.

OCC uses several sources to monitor its members' outside activity. OCC reviews members' FOCUS reports to monitor activity involving futures and commodities, equity securities, U.S. government securities, municipal securities, and other financial endeavors. OCC also exchanges information routinely with other securities clearing agencies about common members. To a much lesser extent, and in an informal manner OCC exchanges limited information with commodities clearing organizations. In addition to other clearing entities, OCC receives information from securities exchanges and the NASD, which generally act as DEAs for OCC members.

The Division believes that OCC should examine the general adequacy of its ability to monitor members and act affirmatively to improve that ability in several areas. Although OCC's Concentration Monitoring System provides information necessary to monitor all aspects of members' options activity, improvements may be possible to detect naked short option concentrations in relation to capital, and position concentrations in relation to options open interest. Of equal importance, and as discussed above, the Division and OCC will continue discussions as to the most appropriate OCC responses to early indications of undue concentration.

OCC and appropriate DEAs also should examine whether improvements are necessary in their ability to identify concentrated individual broker-dealer or customer activity that is cleared through omnibus accounts. Generally, when the combined activity of multiple broker-dealers and customers is cleared through an omnibus account, the concentration of positions of a single broker-dealer or customer may not be immediately apparent, and the net position may mask significant risks. Although OCC can obtain necessary information from clearing members or DEAs (who can obtain information from correspondent broker-dealers concerning their public customers), OCC should consider whether any steps should be taken to provide earlier and more extensive information about specific activity cleared through omnibus accounts. 164/ In this

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satisfied with letters of credit or valued equity securities.

164/ See Section B above.

connection, the Division notes that each options exchange requires reports about persons with substantial options positions. 165/

Additionally, OCC and commodities clearing organizations should improve their information-sharing channels. OCC's experience with the Intermarket Trading Firm demonstrates the invaluable information that can be available to a clearing organization in one market from a clearing organization in another market. Because many securities options broker-dealers and market-makers engage in significant futures and commodities activity, it is essential for OCC to have access to current information about its members' activity in those markets. In this regard, OCC should consider an interface with the BOTCC, which is coordinating the development of a system for the routine, electronic exchange of Pay and Collect data between futures exchanges and clearing organizations, 166/ and should explore the possibility of exchanging additional data for financial surveillance purposes. Although OCC can obtain some information from its members directly, through FOCUS reports, or from DEAs, OCC only can obtain necessary up-to-the-minute information from commodities clearing organizations through sophisticated on-line monitoring systems that some of those organizations maintain.

e. OCC's Relationship with Clearing Banks

As described above, options money settlement occurs quickly, on the morning after trade date or, in the case of intra-day variation margin calls, within one hour of demand. That structure forces members to marshal assets within those time frames and often in response to unexpected demands. That structure may not provide adequate time for extensive deliberations if the clearing member must turn to its clearing bank for unusual amounts of credit. Indeed, OCC's agreements with its clearing banks require those clearing banks to effect settlements or notify OCC which clearing members did not satisfy their payment obligations. Although clearing banks may wish to delay that notice (hoping the clearing member will marshal sufficient assets or provide sufficient assurance to justify further credit), it is critical for OCC to know, at the earliest possible time, whether a member is likely to default on OCC payment obligations.

OCC and its clearing banks should discuss whether improvements can be made in the options money settlement process. During the market break, morning settlement with OCC clearing members, i.e., Pays by the members to OCC (which generally occur at 10:00 a.m.) were delayed a number of times while clearing banks assessed the creditworthiness of their customers or verified that funds were being transferred to customer accounts. Such delays create uncertainty and fuel rumors in the marketplace.

OCC, as guarantor, is obligated to credit members with Collects at 11:00 a.m. and should consider exploring banking relationships that would enable OCC to pay collecting

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165/ Each exchange member must file a report giving the name, address, social security number or tax identification number of any customer who, on the previous business day, held aggregate long or short positions of 200 or more option contracts of any single class of options dealt in on the exchange. See, e.g., CBOE Rule 4.13(a); Amex Rule 906C; PSE Rule VI, Section 7; NYSE Rule 706; and Phlx Rule 1003.

166/ See Commodity Futures Trading Commission, Supplementary Report on Stock Index Futures and Cash Market Activity During October 1987 (January 6, 1988).

clearing members on time regardless of delays by paying clearing members. In fact, OCC has indicated that it did pay collecting clearing members before all settlements with paying clearing members were confirmed at least once during the market break, although OCC withheld payments to the clearing bank causing the delay. The Division believes that all funds due from OCC should be available at settlement time and intends to continue discussions with OCC in this regard. Additionally, OCC and the clearing banks should clarify their agreements regarding when and how payments or partial payments are to be made and confirmed.

f. Uniform Pledge and Transfer Rules

OCC has suggested that it may be possible to improve the process by which OCC members pledge assets to banks. 167/ As discussed below, OCC believes that state commercial law, which governs security interests in investment securities, should be clarified in certain ways to reduce existing uncertainty. For example, because OCC maintains options positions exclusively in book-entry form, the method for perfecting security interests in options may vary from state to state, depending upon whether applicable law reflects the 1977 Amendments to the Uniform Commercial Code ("UCC") Article 8 or an earlier version. Indeed, determining which law applies in multi-state transactions may be difficult, because the conflict of law rules under revised UCC Article 8 yield a different result from the result under earlier versions of UCC Article 8. 168/ Although it is possible to perfect security interests using both methods, doing so is both cumbersome and error-prone. To date, approximately 22 states have adopted key provisions of the 1977 UCC Article 8 amendments. Because state commercial law is far from uniform at this time and because states appear to be modifying the UCC Article 8 amendments rather than adopting those amendments wholesale, OCC has recommended consideration of legislation authorizing the SEC to promulgate uniform pledge and transfer rules (that in effect would pre-empt UCC Article 8) similar to U.S. Treasury Department rules for pledges and transfer of U.S. Treasury securities.

The Division believes uniformity would increase commercial certainty, lender confidence in options markets and thus, public confidence. Therefore, the Division intends to explore with the Commission the appropriateness of such a legislative proposal.

g. Cross-Margining System

OCC has indicated that the liquidity problems of several OCC clearing members during the market break could have been eased with an intermarket margin system. Many OCC members also are clearing members of futures clearing organizations and, during October 1987, had to meet margin calls on their futures positions, as well as their options positions, despite reduced risk posed by some positions because of hedge positions carried at other clearing organizations. Moreover, futures and options settlement times are not necessarily coordinated.

167/ See OCC, Report of the Options Clearing Corporation to the Presidential Task Force on Market Mechanisms (December 1, 1987).

168/ See, e.g., Haley, Investment Securities, Annual Survey of the Uniform Commercial Code, 37 Bus. Law. 997-98 (1982).

OCC and ICC have proposed a system of cross-margining between options and futures, which the Division currently is reviewing, that could facilitate intermarket hedging, reduce certain margin requirements, and minimize liquidity demands on hedged positions. 169/ The OCC and ICC proposal would calculate initial, maintenance, and settlement margin in proprietary (firm) accounts of dual clearing members based on aggregate options and futures positions.

The potential benefits of a cross-margin system are substantial. In a fully-integrated cross-margin account, margin requirements could be fixed to reflect more accurately the net risk of such positions taken as a whole, thus reducing certain margin requirements that result when each leg of an intermarket hedge or spread position is maintained at separate clearing organizations. Moreover, cross-margining positions on the same, or closely-related underlying assets can enhance the integrity of a clearing system because an increase in the risk associated with one leg of a hedged position can be offset by a corresponding increase in the value of the other position. Cross-margining also could offer net money settlements for securities options and futures activity, including variation margin calls, that could increase clearing organization safety and decrease the need for members to move funds during the day among clearing organizations. 170/

OCC and ICC, however, have identified several impediments to full implementation of a cross-margining system. First, customer segregation provisions of the Commodity Exchange Act ("CEA") prohibit commingling of customer funds and could be interpreted to preclude the CFTC from adopting rules permitting cross-margining. Second, because a cross-margined account would contain both commodities and securities positions, it could be subject to conflicting claims under the Bankruptcy Code and the Securities Investor Protection Act. ICC has proposed amendments to the CEA to overcome these regulatory obstacles. 171/ The Division believes that the potential for reductions in risk exposure for both futures and options clearing corporations warrants an increased

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169/ See Securities Exchange Act Release No. 23547 (August 21, 1986), 51 FR 30504. ICC has filed a corresponding proposal with the CFTC. Those proposals and the discussion above concern risks posed to clearing organizations and not broader questions of leverage in derivative markets.

170/ In a comment letter to the CFTC, the SEC generally supported the concept of cross-margining. See letter from Jonathan G. Katz, Secretary, SEC, to Jean A. Webb, Secretary, CFTC, dated May 5, 1987. The SEC noted, however, that the structure of a cross-margining system must assure maximum safety and minimum restraint on competition among organizations providing clearing and brokerage services, thus indicating that, in the SEC's view, the ability to offer cross-margining services should be available to any eligible clearing organization.

171/ See Statement of the Intermarket Clearing Corporation before the Subcommittee on Conservation, Credit, and Rural Development, Committee on Agriculture, U.S. House of Representatives, April 15, 1986. See also, Commodity Futures Trading Commission, Cross-Margining of Commodity Futures, Commodity Options, and Securities Options; Request for Comments on Petition for Rulemaking, 51 FR 41117 (November 13, 1987), in which ICC proposed that the CFTC issue a rule of general applicability that would permit cross-margining.

commitment by both the SEC and CFTC to resolve outstanding issues and permit the implementation of a cross-margining system for market professionals.

New York Stock Exchange

TRADING DAY	NORMAL AVERAGE OR SAMPLE	OCT. 12	OCT. 13	OCT. 14	OCT. 15	OCT. 16	OCT. 19	OCT. 20	OCT. 21	OCT. 22	OCT. 23	OCT. 26	OCT. 27	OCT. 28	OCT. 29	OCT. 30
Share volume (millions)	180.5	144.9	172.9	207.4	261.2	338.5	604.3	608.1	449.4	392.2	245.6	340.0	260.2	279.4	258.1	307.4
Transaction volume	165,250	144,857	149,830	182,756	225,550	309,645	551,120	488,858	496,156	402,444	224,786	293,781	264,147	267,141	214,844	247,644
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Automated trade systems																
Trade data compared sides	315,000	295,182	290,952	321,954	366,398	670,476	1,231,000	990,410	1,175,400	884,232	479,182	647,981	582,972	503,038	432,127	501,792
Pct total trade sides	65.6%	68.2%	66.3%	68.8%	69.3%	71.7%	75.7%	69.5%	76.1%	72.4%	71.0%	72.1%	72.2%	68.5%	68.1%	68.4%
Number of transactions	78,250	73,296	72,758	93,489	116,597	167,619	307,750	247,603	295,850	221,058	119,796	168,770	145,743	125,768	108,031	125,526
% of total transactions	47.6%	50.6%	48.5%	51.2%	51.6%	54.1%	57.7%	50.6%	59.2%	54.9%	53.2%	55.0%	55.1%	50.8%	50.2%	50.6%
Share volume (millions)		71.624	72.456	101.432	121.767	177.94	305.641	253.7	191.893	160.772	99.858	135.156	122.649	110.098	98.776	114.961
Pct share volume		50.4%	41.9%	48.9%	46.2%	52.5%	50.5%	41.7%	42.7%	40.9%	40.6%	41.7%	47.1%	39.4%	38.2%	37.8%
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Other systems (two-sided comparison)																
(1+) compared sides)	165,000	136,832	147,886	168,862	206,058	263,954	394,114	433,058	367,560	335,850	195,658	249,516	223,470	250,784	202,246	231,396
Pct total trade sides	34.4%	31.7%	33.7%	35.1%	36.6%	28.2%	24.2%	30.4%	23.8%	27.5%	28.9%	27.8%	27.7%	31.4%	31.8%	31.6%
Number of transactions	86,500	71,561	77,072	88,868	108,953	142,026	225,370	241,256	202,106	181,388	104,990	132,011	108,804	121,102	106,810	122,319
Pct total transactions	52.3%	49.4%	51.4%	48.7%	48.3%	45.8%	42.2%	49.3%	40.7%	45.0%	46.7%	44.9%	44.8%	49.1%	49.7%	49.4%
Share volume (millions)	180.5	70.276	100.444	105.968	101.433	160.56	298.659	350.4	257.507	231.428	145.742	133.644	137.551	169.302	159.326	188.459
Pct share volume		49.5%	58.0%	51.0%	53.7%	47.4%	49.4%	58.2%	57.3%	59.0%	59.3%	56.2%	52.8%	60.5%	61.7%	62.1%
Uncompared trades (1+2 report)	8,000	7,010	6,298	8,871	11,848	20,098	56,626	69,413	37,251	26,922	14,322	14,596	12,337	12,979	11,374	13,491
Total uncompared (total trade-sides)	1.6%	1.6%	1.4%	1.6%	1.7%	2.1%	3.3%	3.3%	2.1%	2.1%	2.0%	1.7%	1.6%	1.6%	1.7%	1.8%
Total uncompared (2-sided input)	4.8%	4.9%	4.0%	4.9%	5.4%	7.0%	12.5%	10.2%	9.2%	7.4%	6.8%	5.4%	5.6%	4.9%	5.3%	5.5%
Error and Uncompared Trade Resolution																
1+2 Advisories Returned	1000	992	871	1459	1554	2616	5081	5691	3970	3595	1,639	1331	1?.9	1511	1?10	1563
Questioned trade and As of s processed	6,500	5541	4998	7231	9847	16,803	47,671	42,564	34,182	24,004	12,578	13,622	11,[illegible]0	9586		

NASDAQ/Over-the-Counter

TRADING DAY	NORMAL AVERAGE PP SAMPLE	OCT. 12	OCT. 13	OCT. 14	OCT. 15	OCT. 16	OCT. 19	OCT. 20	OCT. 21	OCT. 22	OCT. 23	OCT. 26	OCT. 27	OCT. 28	OCT. 29	OCT. 30
Share volume (millions)	145.5	137.8	131.7	145.6	159.8	195.9	227.7	284.1	288.1	249.8	177.0	190.5	207.3	202.2	205.9	208.4
Transaction volume	58,859	45,954	42,526	48,626	52,452	78,178	101,337	111,562	118,261	110,268	83,135	88,895	80,790	72,913	64,677	71,565
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Automated trade systems																
Trade date compared sides	15,009	15,340	14,484	14,776	16,754	21,782	43,214	22,252	25,982	21,878	20,856	21,866	24,598	20,152	18,460	23,368
Pct total trade sides	14.56%	15.05%	16.65%	15.06%	15.74%	16.02%	21.98%	10.74%	11.64%	10.46%	16.52%	12.47%	15.09%	13.77%	14.19%	16.10%
Number of transactions	3,759	3,335	3,616	3,694	4,189	5,446	10,844	5,563	6,496	5,470	5,702	5,467	6,150	5,033	4,620	5,842
% of total transactions	7.37%	7.59%	8.50%	7.60%	7.99%	6.97%	10.66%	4.99%	5.49%	4.96%	8.24%	6.18%	7.61%	6.90%	7.14%	8.16%
Share volume (millions)		1.775	1.775	1.936	1.933	2.212	3.161	2.363	3.465	3.593	3.057	2.018	2.177	2.434	1.964	1.867
Pct share volume		1.51%	1.55%	1.52%	1.21%	1.13%	1.42%	2.59%	1.20%	1.44%	1.73%	1.48%	1.05%	1.20%	0.95%	0.90%
**********																
Other systems (two-sided comparison)																
(1+) compared sides)	88,006	75,318	72,412	83,306	89,669	133,592	153,182	184,922	197,264	187,310	105,138	153,428	138,400	126,110	111,720	121,759
Pct total trade sides	85.44%	84.95%	83.35%	84.94%	84.26%	83.98%	78.02%	89.26%	88.36%	89.54%	83.48%	87.53%	84.91%	86.23%	85.81%	83.90%
Number of transactions	47,100	40,599	38,910	44,932	48,264	72,733	90,514	105,979	111,765	104,899	57,937	83,338	74,640	67,880	60,057	65,723
Pct total transactions	92.63%	92.41%	91.50%	92.40%	92.01%	93.03%	89.34%	95.01%	94.51%	95.04%	91.76%	93.84%	92.39%	93.10%	92.86%	91.84%
Share volume (millions)		136.025	129.925	143.684	157.867	193.688	219.739	276.737	284.635	246.207	173.943	187.686	205.123	199.766	203.936	206.533
Pct share volume		98.49%	98.65%	98.68%	98.79%	98.87%	98.58%	97.41%	98.80%	98.56%	98.27%	98.52%	98.95%	98.80%	99.05%	99.10%
Uncompared trades (T+2 reports)	6,209	5,879	5,408	6,558	6,867	11,873	27,685	27,035	20,266	22,487	10,747	13,240	10,880	9,649	8,385	9,688
Initial uncompared (total trade-sides)	5.68%	6.22%	5.86%	6.27%	6.06%	7.10%	12.34%	11.54%	10.51%	9.71%	7.85%	7.03%	6.26%	6.19%	6.05%	6.26%
Initial uncompared (2-sided input)	6.58%	7.24%	6.95%	7.30%	7.11%	8.16%	15.29%	12.75%	11.35%	10.72%	9.28%	7.95%	7.29%	7.11%	6.98%	7.37%
Error and Uncompared Trade Resolutions																
T+2 Advisories Returned	2,869	2,869	2,663	3,122	2,548	4,149	10,292	8,375	7,346	7,406	3,445	4,765	4,252	3,983	3,471	3,598
T+3 Advisories Returned	1,200	384	305	401	492	2,201	4,835	6,461	9,350	5,726	5,148	4,959	3,502	3,318	3,103	3,600
**********																

American Stock Exchange

TRADING DAY	NORMAL AVERAGE OR SAMPLE	OCT. 12	OCT. 13	OCT. 14	OCT. 15	OCT. 16	OCT. 19	OCT. 20	OCT. 21	OCT. 22	OCT. 23	OCT. 26	OCT. 27	OCT. 28	OCT. 29	OCT. 30
Share volume (millions)	10.5	8.5	10.9	9.8	12.8	18.5	35.4	43.4	30.5	28.6	18.7	22.4	21.5	20.3	16.8	22.3
Transaction volume	15,000	12,917	13,611	15,214	16,833	24,915	47,125	50,617	40,832	37,530	22,611	29,535	29,597	26,603	22,330	25,695
Automated trade systems																
Trade date compared sides	72,000	18,310	20,164	21,129	23,744	34,940	75,882	87,897	85,586	61,129	33,774	41,508	45,222	36,976	33,350	38,100
%of total trade sides	55.00%	53.75%	55.37%	52.80%	53.29%	53.78%	59.52%	61.46%	63.80%	60.41%	56.88%	54.27%	56.98%	53.16%	55.44%	55.86%
Number of transactions	5,500	4,578	5,041	5,281	5,936	8,735	18,151	29,723	21,397	15,281	8,464	10,327	11,306	9,143	8,338	9,525
% of total transactions	36.67%	35.45%	37.04%	38.71%	35.18%	35.06%	39.15%	40.94%	44.00%	40.67%	37.34%	35.37%	38.20%	34.63%	37.01%	37.20%
Share volume (millions)		2.03	2.16	2.40	2.80	4.01	8.51	8.89	8.73	6.45	3.81	4.97	5.19	8.22	3.86	5.40
%of share volume	0.00%	23.93%	19.79%	24.51%	21.88%	21.79%	24.03%	20.48%	25.31%	24.24%	20.35%	22.17%	24.13%	20.78%	22.98%	19.74%
Other systems (two-sided comparison)																
(1+) compared sides)	18,000	15,755	16,253	18,006	20,015	30,025	50,605	51,990	40,558	40,063	25,811	34,985	30,110	32,217	26,587	30,106
%of total trade sides	45.00%	46.25%	44.63%	47.20%	46.71%	46.22%	40.48%	38.54%	36.20%	39.59%	43.12%	45.73%	43.02%	46.84%	44.36%	44.14%
Number of transactions	9,500	8,335	8,570	9,933	10,937	16,180	28,674	29,894	27,236	22,789	14,168	18,958	18,292	17,260	14,193	18,080
%of (otal) transactions	63.33%	64.55%	62.96%	65.29%	64.82%	64.94%	60.85%	59.06%	56.00%	59.33%	62.66%	64.63%	61.80%	65.37%	62.99%	62.80%
Share volume (millions)	10.5	6.466	8.743	7.398	10	14.469	26.893	30.513	25.760	20.151	14.894	17.435	16.312	16.082	12.84	17.897
%of share volume		76.07%	80.21%	75.49%	78.13%	78.21%	75.97%	79.52%	74.69%	75.76%	79.65%	77.83%	75.87%	79.72%	77.02%	80.26%
Uncompared trade-sides (1+2 report)	1,000	914	886	980	1,058	2,335	6,743	7,798	5,913	4,514	2,574	2,933	2,441	2,303	1,798	2,054
Initial uncompared (total trade-sides)	2.44%	2.61%	2.38%	2.39%	2.32%	3.07%	5.14%	5.47%	4.27%	4.27%	4.06%	3.69%	2.99%	3.24%	2.91%	2.92%
Initial uncompared (2-sided input)	5.26%	5.88%	5.17%	8.93%	8.04%	7.22%	11.76%	13.04%	10.86%	10.1)%	8.91%	7.74%	6.68%	6.67%	6.37%	6.39%
Error and Uncompared Trade Resolution																
1+2 Advisories Entered	740	707	191	122	219	555	1,064	1,164	870	785	507	450	406	385	331	526
Questioned Trade and As of's processed	400	344	305	401	497	E166	3,452	4,980	3,218	2,056	1,192	1,307	1,163	1,052		

New York Stock Exchange
Trade Comparison and Resolution Statistics
Composite Data for 12 Firms Conducting a Public Business

	(10/14)	(10/15)	(10/16)	(10/19)	(10/20)	(10/21)	(10/22)	(10/23)	(10/26)	(10/27)	(10/28)
Two-sided trade input	60,941	70,108	99,342	208,712	192,998	171,362	121,798	73,704	90,411	83,456	80,487
Trade-date trade-sides	70,694	78,214	116,154	744,836	196,433	188,584	133,426	91,677	101,046	89,216	78,354
total sides	131,635	148,322	215,496	953,548	389,431	359,948	257,224	165,381	191,457	172,641	158,841
% trade date trade-sides/total	53.70%	52.73%	53.90%	53.98%	50.44%	52.39%	51.87%	55.43%	52.78%	51.67%	49.33%
T+1 reported compared (sides)	71,196	81,355	109,352	236,478	194,493	172,674	124,802	74,799	92,920	83,476	78,928
T+1 reported uncompared (sides)	1,297	1,607	2,986	11,157	8,068	5,673	4,897	2,308	2,091	1,761	1,354
% Uncompared/Two-sided input	2.13%	2.29%	3.01%	5.34%	4.18%	3.31%	3.51%	3.74%	2.31%	2.11%	2.18%
Uncompared trade-sides resolved T+2	277	409	525	1107	965	805	622	376	521	309	333
T+3	805	1284	2552	7763	2409	4353	3289	1672	1635	1292	1412
T+4	322	168	580	5446	5738	1922	1370	728	661	618	380
T+5	61	80	91	2055	2141	769	378	167	99	65	40
Total uncompared resolved	1,465	2,079	3,748	16,367	11,253	7,829	5,659	2,923	2,696	2,284	2,165
Uncompared not resolved by settlement date	32	28	102	1725	1725	426	453	188	618	1212	1640
Value of unresolved	$1,422,734	$7,610,440	$6,508,618	$90,917,961	$1,038,719,734	$33,712,839	$39,866,762	$8,544,387	$14,620,125	$83,213,350	$3,775,792
Uncompared not resolved as of last calculation	0	1	1	10	17	0	14	2	1	1	1

Over-The-Counter
Trade Comparison and Resolution Statistics
Composite Data for 12 Firms Conducting a Public Business

	(10/14)	(10/15)	(10/16)	(10/19)	(10/20)	(10/21)	(10/22)	(10/23)	(10/26)	(10/27)	(10/28)
Two-sided trade input	20,775	22,448	34,429	46,054	46,364	42,738	44,156	27,611	37,360	32,667	30,542
Trade-date trade-sides	9,677	10,560	15,686	24,714	20,993	27,185	19,810	14,080	17,265	16,100	14,598
total sides	30,452	33,008	50,115	70,768	67,357	69,917	63,970	41,691	54,603	48,762	45,140
% Trade date trade-sides/total	31.8%%	31.99%	31.30%	34.92%	31.17%	31.73%	30.98%	33.77%	31.62%	33.02%	32.34%
T+1 reported compared (sides)	19,899	21,344	32,193	40,792	41,520	43,468	40,841	25,179	35,073	31,299	28,999
T+1 reported uncompared (sides)	1,021	1,140	2,180	4,689	5,417	8,411	3,481	1,749	2,695	1,876	1,698
% Uncompared/Two-sided input	4.93%	5.08%	6.36%	10.18%	11.68%	9.74%	7.88%	6.33%	7.22%	5.59%	5.56%
Uncompared trade-sides resolved (T+2)											
T+2	631	484	788	1494	1467	1099	1263	680	816	794	669
T+3	318	573	713	1552	1574	1432	1335	837	939	628	588
T+4	122	117	344	643	879	858	670	494	529	355	219
T+5	58	73	124	218	255	167	183	99	146	95	118
Total uncompared resolved	929	1,117	1,929	3,907	4,188	3,556	3,211	2,101	2,230	1,722	1,594
Uncompared not resolved by settlement date	208	564	443	1054	1189	650	624	425	670	684	710
Value of unresolved	$20,807,957	$17,093,353	$35,057,879	$67,706,954	$103,625,094	$75,506,159	$88,675,813	$62,164,134	$30,930,092	$31,474,028	$27,851,709
Uncompared not resolved as of last calculation	1	0	0	94	95	4	7	2	1	2	2

American Stock Exchange
Trade Comparison and Resolution Statistics
Composite Data for 12 Firms Conducting a Public Business

	[10/14]	[10/15]	[10/16]	[10/19]	[10/20]	[10/21]	[10/22]	[10/23]	[10/26]	[10/27]	[10/28]
Two-sided trade input	5,105	6,165	8,660	16,366	17,252	16,707	12,049	8,420	10,562	9,881	9,780
Trade-date trade-sides	4,000	4,653	6,610	13,679	14,159	15,526	9,674	6,167	7,954	7,703	6,821
Total sides	9,105	10,818	15,270	30,000	31,511	32,233	21,723	14,587	18,516	17,649	16,201
% trade date trade sides/total	43.93%	43.01%	43.29%	45.65%	44.93%	48.17%	44.53%	42.28%	42.96%	44.06%	42.10%
T+1 reported compared (sides)	5,029	6,246	8,788	17,171	17,121	15,995	11,523	8,054	10,365	9,659	8,917
T+1 reported uncompared (sides)	103	185	372	1,023	1,044	744	536	429	410	332	396
% Uncompared/two-sided input	2.00%	3.00%	4.30%	6.27%	6.07%	4.45%	4.61%	5.10%	3.89%	3.56%	4.22%
Uncompared trade-sides resolved											
T+2	52	55	115	151	154	138	113	75	80	71	85
T+3	54	59	184	448	496	514	345	192	227	186	189
T+4	34	70	132	369	450	199	216	144	137	122	101
T+5	11	14	29	138	67	34	24	25	19	16	17
Total uncompared resolved	151	198	462	1106	1175	885	698	436	421	395	392
Uncompared not resolved by settlement date	18	15	49	118	167	79	37	34	25	144	121
Value of unresolved	$125,210	$135,113	$425,002	$2,579,110	$2,472,639	$810,911	$185,095	$218,438	$303,151	$1,375,193	$478,163
Uncompared not resolved as of last calculation	0	0	0	1	0	0	0	0	0	0	1

SETT DATE	VALUE OF CNS RECEIPTS (Debits)	VALUE OF CNS DELIVERIES (Credits)	CNS NET SETTLEMENT (One Side)	NO. OF CNS FAILS (Long)	NO. OF CNS FAILS (Short)	VALUE OF CNS FAILS (Long)	VALUE OF CNS FAILS (Short)	LONG AVERAGE DOLLAR Value/Items	SHORT AVERAGE DOLLAR Value/Items
10/14	6.4	6.4	1.2	33,921	26,101	.8	.8	23.6	30.6
10/15	6.3	6.3	1.1	33,003	25,363	.8	.8	24.2	31.5
10/16	6.0	6.0	1.1	32,795	25,083	.8	.8	24.4	31.9
10/19	8.1	8.1	1.4	33,863	26,745	.9	.9	26.6	33.7
10/20	4.6	4.6	.9	33,676	25,571	.8	.8	23.8	31.3
10/21	5.5	5.5	1.4	33,536	26,061	.8	.8	23.9	30.7
10/22	6.6	6.6	1.3	32,941	26,025	.9	.9	27.3	34.6
10/23	9.3	9.3	2.5	33,216	26,796	1.1	1.1	33.1	41.1
10/26	12.1	12.1	3.7	36,249	33,059	1.2	1.2	33.2	36.3
10/27	11.0	11.0	2.3	35,333	31,448	1.2	1.2	34.0	38.2
10/28	9.9	9.9	2.4	37,727	31,281	1.3	1.3	34.5	41.6
10/29	8.6	8.6	1.8	37,258	30,648	1.0	1.0	26.8	32.6
10/30	6.3	6.3	1.1	36,576	29,844	.9	.9	24.6	30.2
11/02	6.7	6.7	1.2	35,865	30,395	.9	.9	25.1	29.6
11/03	6.7	6.7	1.1	35,737	30,504	.9	.9	25.2	29.5
11/04	6.5	6.5	1.0	34,764	28,824	.8	.8	23.0	27.8
11/05	6.3	6.3	1.1	34,433	28,281	.8	.8	23.2	28.3
11/06	7.0	7.0	1.1	35,686	28,610	.8	.8	22.4	28.0

NOTE: All dollar figures in billions except average fail dollar value, which is in thousands.

Fails to Deliver/Fails to Receive and Stock Loan/Stock Borrow
As of Month-end September 1987 and October 1987
Aggregate Data from 17 Firms
[In $Thousand]

	September	October	Difference Sept-Oct	Percentage Decrease
Fails to Deliver	$9,508,763	$8,034,438	$1,474,325	15.50%
Securities Borrowed	$37,443,989	$34,306,271	$3,137,718	8.38%
Fails to Receive	$7,212,465	$6,789,967	$422,498	5.86%
Securities Loaned	$23,626,413	$20,267,339	$3,359,074	14.22%

Table 10-9

Number of Corporate Deposits and Withdrawals
(in thousands)

	Deposits 1/			Withdrawals 2/		
Date:	DTC 3/	MSTC	Philadep	DTC	MSTC	Philadep
9/1-31	23.2	N/A	N/A	23.2	N/A	N/A
10/14	N/A	4.1	2.4	N/A	2.5	1.7
10/15	N/A	4.8	2.5	N/A	2.3	1.6
10/16	N/A	4.0	2.4	N/A	2.0	1.7
10/19	23.5	3.6	2.0	22.5	1.8	1.2
10/20	23.5	4.1	2.0	22.5	4.0	1.4
10/21	23.5	4.2	2.7	22.5	2.6	1.8
10/22	23.5	5.0	2.1	22.5	1.9	1.2
10/23	23.5	3.8	1.5	22.5	2.4	1.3
10/26	28.5	4.6	1.7	24.9	2.4	1.8
10/27	25.1	4.4	2.1	27.1	2.9	1.7
10/28	30.0	4.7	1.8	45.2	4.2	2.1
10/29	27.6	4.1	1.7	54.4	4.7	5.0
10/30	25.3	4.2	1.6	p7.5	5.4	2.7
11/02	24.4	3.1	1.4	e3.0	5.1	10.0
11/03	N/A	4.0	1.4	N/A	6.2	3.9
11/04	N/A	3.9	1.4	N/A	5.4	2.8
11/05	N/A	3.6	1.2	N/A	5.0	4.5

1/ A deposit may include multiple certificates in the same issue from the same participant.

2/ The withdrawals column includes the number of requests to remove certificates from each depository's custody.

3/ DTC deposits and withdrawals from 9/1 - 31 and 10/19 - 10/23 represent averages.

Table 10-10

SIC 1997 INDUSTRIES, LOSS REPORTS, AND RECOVERY REPORTS

	Monthly Average January-August	September	October	November
Industries	190,327	181,938	158,248	149,506
Loss Reports	52,767	53,192	53,266	47,247
Recovery Reports	14,391	8,937	12,164	36,655

Table 10-11

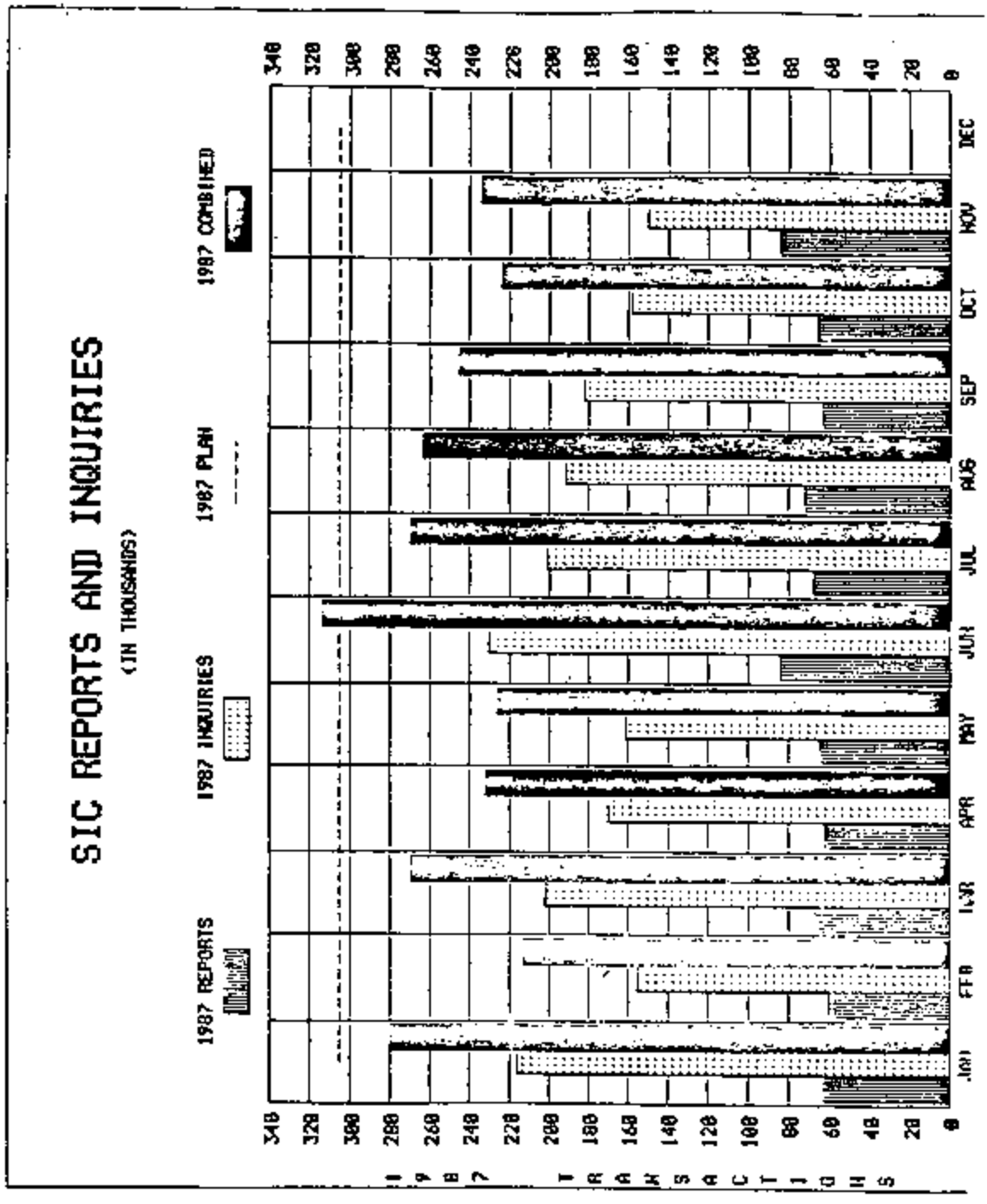
SIC REPORTS AND INQUIRIES
(IN THOUSANDS)
1987 REPORTS
1987 INQUIRIES
1987 PLAN
1987 COMBINED
1987 TRANSACTIONS
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340

Table 10-12

OCC Volume and Statistics for Equity and Index Options

CONTRACT	Total Cleared Contracts		Average Daily Contracts		Average Premium per contract		Cleared Contracts by Account Type: Customer		Firm		Market-Makers/Specialists	
	May '87	Oct. '87	May '87	Oct. '87	May '87	Oct. '87	May '87	Oct. '87	May '87	Oct. '87	May '87	Oct. '87
TOTAL	12,696,809	110,533,050	434,804	841,993	$361.73	$339.20	110,747,385	15,827,198	11,650,644	2,210,872	132,986,7471	19,001,660
CALLS	10,233,285	113,000,142	511,644	630,916	$375.43	$258.43	8,843,753	12,966,496	11,312,376	1,700,601	110,310,8331	13,932,987
LONG							6,253,663	6,614,964	650,524	838,678	5,199,4961	6,436,529
SHORT							6,409,894	5,451,252	632,852	942,123	5,111,3371	7,466,467
PUTS	2,462,285	4,643,708	123,140	211,078	$281.25	$300.99	1,904,029	3,760,652	345,648	438,091	3,675,9161	5,000,673
LONG							973,464	2,024,241	200,758	259,189	1,338,4531	2,360,270
SHORT							900,634	1,736,411	144,920	178,902	1,337,2610	2,720,393

INDEX OPTION

TOTAL	9,821,253	112,004,165	493,040	502,000	$404.12	$365.41	6,265,760	8,311,500	773,210	4,095,723	133,683,7261	86,193,619
CALLS	5,776,204	6,639,645	288,810	342,711	$462.21	$364.05	3,629,750	4,459,936	430,891	522,855	7,500,3721	8,333,499
LONG							1,965,149	2,440,905	223,142	266,810	3,747,6151	3,924,830
SHORT							1,815,601	1,991,031	207,749	259,045	3,753,1561	4,408,669
PUTS	4,045,147	6,194,520	207,257	279,296	$321.16	$1200.42	2,645,010	3,859,652	342,319	569,868	5,182,9651	7,859,329
LONG							1,381,361	1,914,101	175,059	275,062	2,490,3271	3,753,357
SHORT							1,263,649	1,945,550	168,860	294,806	2,612,6381	3,906,163

Table 10-13

OCC Volume and Statistics for Actively-Traded Index Options
October 1987

	Total Cleared Contracts	Average Daily Contracts	Average Premium per Contract	Cleared Contracts by Account Type: Customer	Firm	Market-maker/ Specialist
CEX (S&P 100)						
TOTAL	9,923,049	451,048	$700.29	8,462,266	763,614	12,619,210
Calls	5,166,421	234,837	$288.32	3,467,597	339,635	6,595,609
Long				1,930,829	164,069	3,051,523
Short				1,536,769	175,566	3,454,087
Puts	4,756,628	216,210	$1,147.75	2,995,669	423,979	6,023,601
Long				1,470,935	197,708	3,087,985
Short				1,524,734	206,271	3,025,623
XBI (Major Market Index)						
TOTAL	530,045	24,093	$524.73	400,414	41,580	618,094
Calls	424,491	19,295	$302.77	329,457	29,810	489,735
Long				190,438	16,476	317,877
Short				139,019	13,634	271,858
Puts	105,554	4,798	$1,417.36	70,959	11,770	128,359
Long				34,734	5,751	65,069
Short				36,225	6,019	62,310
XMI (Major Market Index)						
TOTAL	866,211	39,378	$720.71	657,009	68,727	1,006,686
Calls	401,246	18,238	$439.56	302,675	35,969	463,648
Long				157,127	16,829	226,790
Short				145,228	19,140	236,858
Puts	464,965	21,135	$960.61	354,334	32,758	543,038
Long				175,817	17,372	271,976
Short				178,537	15,386	271,062
SPI (S&P 500)						
TOTAL	454,876	20,676	$1,101.12	227,320	79,281	603,151
Calls	240,239	10,920	$573.18	129,226	34,484	316,748
Long				74,215	83,292	182,732
Short				55,011	26,192	144,056
Puts	214,637	9,756	$2,115.96	98,094	44,797	286,383
Long				47,682	19,511	147,444
Short				50,412	25,286	138,939

STOCK INDEX FUTURES MARGIN

Stock Index Futures Contract	Exchange Multiplier	10-14-87 Margin: Hedged / Speculative	10-14-87 Closing Contract Price*** / Contract Value	10-14-87 Initial Hedged Margin as Percentage of Contract Value	11-02-87 Margin: Hedged / Speculative	11-02-87 Closing Contract Price*** / Contract Value	11-02-87 Initial Hedged Margin as Percentage of Contract Value	1-06-88 Margin: Hedged / Speculative	1-06-88 Closing Contract Price**** / Contract Value	1-06-88 Initial Hedged Margin as Percentage of Contract Value
Standard & Poor's 500 Index	CME 500	I* $5,000 M** $5,000 I $10,000 M $5,000	312 $156,000	3.2%	I $15,000 M $15,000 I $20,000 M $15,000	258 $129,000	11.6%	I $10,000 M $10,000 I $15,000 M $10,000	259 $129,500	7.7%
Major Market Index	CBT 250	I $3,000 M $3,000 I $4,500 M $3,000	496 $124,000	2.4%	I $10,000 M $10,000 I $12,000 M $10,000	411 $102,750	9.7%	I $10,000 M $10,000 I $12,000 M $10,000	409 $102,250	9.8%
Value Line Index	KCBT 500	I $3,000 M $3,000 I $4,500 M $3,000	267 $133,500	2.2%	I $20,000 M $20,000 I $20,000 M $20,000	207 $103,500	19.3%	I $5,000 M $5,000 I $7,500 M $7,500	210 $105,000	4.8%
NYSE Composite Index	NYFE 500	I $1,750 M $1,500 I $3,500 M $1,750	175 $87,500	2.0%	I $5,000 M $5,000 I $7,000 M $5,000	145 $72,500	6.9%	I $4,000 M $4,000 I $6,000 M $4,000	145 $72,500	5.6%

*/ Initial margin requirement.
**/ Maintenance margin requirement.
***/ Contract expiring December 1987.
****/ Contract expiring March 1988.

Table 10-15

Variation Margin Calls and Settlements (in thousands of dollars)

	10/19	10/20	10/21	10/22	10/23
OCC					
intra-day	1,272,426	466,100	272,492	-	-
settlement	123,211	1,114,202	280,509	239,668	195,667
total	1,395,637	1,580,302	553,001	239,668	195,667
CME					
intra-day	1,620,000	321,000	986,000	519,000	111,000
settlement	914,900	603,000	612,900	255,900	149,700
total	2,534,900	924,000	1,598,900	774,900	260,700
BOTCC					
intra-day	209,750	876,230	617,810	464,635	37,615
settlement	225,109	568,423	416,184	466,582	653,180
total	434,859	1,444,653	1,033,994	931,217	690,795

Table 10-16

OCC Beginning and End of Day Margin Requirements

DATE	BEGINNING OF DAY TOTALS			INTRA-DAY VARIATION MARGIN CALLS	END OF DAY TOTAL MARGIN REQUIREMENTS
	EQUITY MARGIN REQUIREMENTS	NEO MARGIN REQUIREMENTS	TOTAL MARGIN REQUIREMENTS		
OCT. 12	$2,467,299,710	$1,087,670,290	$3,554,970,000	$0	$3,554,970,000
OCT. 13	$2,388,753,622	$1,077,967,008	$3,466,720,629	$0	$3,466,720,629
OCT. 14	$2,456,897,933	$1,063,532,460	$3,520,430,392	$98,664,000	$3,619,094,392
OCT. 15	$2,341,612,251	$1,221,099,557	$3,562,711,808	$2,120,000	$3,564,831,808
OCT. 16/17	$2,283,929,893	$1,369,557,433	$3,653,487,325	$240,475,000	$3,893,962,325
OCT. 19	$2,066,722,919	$1,297,659,617	$3,364,382,536	$1,221,299,000	$4,585,681,536
OCT. 20	$3,175,550,232	$2,296,481,733	$5,472,031,965	$466,100,000	$5,938,131,965
OCT. 21	$3,032,384,525	$1,992,820,347	$5,025,204,871	$272,492,000	$5,297,696,871
OCT. 22	$2,598,091,365	$1,543,913,701	$4,142,005,066	$0	$4,142,005,066
OCT. 23	$2,575,881,709	$1,735,170,958	$4,311,052,667	$0	$4,311,052,667
OCT. 26	$2,462,277,711	$1,749,361,934	$4,211,639,646	$0	$4,211,639,646
OCT. 27	$2,564,222,572	$1,885,963,339	$4,450,185,911	$2,329,000	$4,452,514,911
OCT. 28	$2,350,934,565	$1,798,878,504	$4,149,813,069	$32,571,000	$4,182,384,069
OCT. 29	$2,289,061,522	$1,806,085,791	$4,095,147,314	$39,263,000	$4,134,410,314
OCT. 30	$2,132,573,307	$1,711,558,731	$3,844,132,038	$5,400,000	$3,849,532,038
NOV. 2	$2,024,033,313	$1,568,633,819	$3,592,667,132	$0	$3,592,667,132
NOV. 3	$1,931,904,364	$1,637,428,323	$3,569,332,687	$331,580,000	$3,900,912,687
NOV. 4	$1,901,420,306	$1,616,745,773	$3,518,166,079	$0	$3,518,166,079
NOV. 5	$1,874,840,806	$1,629,374,009	$3,504,214,815	$154,210,000	$3,658,424,815
NOV. 6	$1,843,211,949	$1,730,407,277	$3,573,619,226	$0	$3,573,619,226

OCC Beginning and End of Day Margin Deposits

	BEGINNING OF DAY TOTALS					DEPOSIT	END OF DAY
DATE	CASH	GOVERNMENT SECURITIES	VALUED SECURITIES	LETTERS OF CREDIT	TOTAL DEPOSITS	(WITHDRAWAL) ACTIVITY	TOTAL DEPOSITS
OCT. 12	$21,420,264	$92,378,145	$1,153,801,477	$3,044,591,003	$4,312,190,889	$37,627	$4,312,228,516
OCT. 13	$31,276,730	$92,378,145	$1,143,980,638	$3,044,591,003	$4,312,228,516	($110,320,844)	$4,201,907,672
OCT. 14	$19,472,831	$109,553,647	$1,157,419,191	$2,915,462,003	$4,201,907,672	$38,782,375	$4,240,690,047
OCT. 15	$22,941,136	$109,605,920	$1,143,779,988	$2,964,363,003	$4,240,690,047	($22,440,805)	$4,218,249,242
OCT. 16/17	$33,319,814	$108,293,120	$1,101,697,305	$2,974,939,003	$4,218,249,242	$33,373,090	$4,251,622,332
OCT. 19	$61,970,911	$103,491,252	$1,098,288,166	$2,987,872,003	$4,251,622,332	$944,577,966	$5,196,200,298
OCT. 20	$554,051,398	$105,515,252	$1,224,523,645	$3,312,110,003	$5,196,200,298	$1,092,465,278	$6,288,665,576
OCT. 21	$495,817,652	$130,340,794	$1,259,133,128	$4,403,374,003	$6,288,665,576	($218,006,884)	$6,070,658,692
OCT. 22	$119,646,518	$151,607,979	$1,337,490,191	$4,461,914,003	$6,070,658,692	($388,899,927)	$5,681,758,765
OCT. 23	$119,746,130	$135,898,140	$1,340,929,493	$4,085,185,003	$5,681,758,765	($94,457,523)	$5,587,301,242
OCT. 26	$116,349,948	$133,140,695	$1,316,280,595	$4,021,530,003	$5,587,301,242	$54,307,628	$5,641,608,870
OCT. 27	$121,956,374	$138,746,891	$1,214,365,602	$4,166,540,003	$5,641,608,870	$99,188,610	$5,740,797,480
OCT. 28	$94,390,365	$138,746,891	$1,265,185,221	$4,242,475,003	$5,740,797,480	($248,463,831)	$5,492,333,649
OCT. 29	$73,928,589	$143,745,343	$1,227,578,714	$4,047,081,003	$5,492,333,649	$54,793,969	$5,547,127,618
OCT. 30	$69,256,265	$115,444,946	$1,331,235,404	$4,031,191,003	$5,547,127,618	($335,603,576)	$5,211,524,042
NOV. 2	$57,091,020	$116,619,658	$1,346,079,361	$3,691,734,003	$5,211,524,042	($295,995,369)	$4,915,528,673
NOV. 3	$70,637,905	$113,776,658	$1,325,014,106	$3,406,100,003	$4,915,528,673	($14,912,009)	$4,900,616,664
NOV. 4	$52,075,354	$115,103,883	$1,301,077,423	$3,432,360,003	$4,900,616,664	($186,631,266)	$4,713,985,398
NOV. 5	$58,085,808	$117,582,183	$1,243,955,403	$3,294,362,003	$4,713,985,398	$22,219,413	$4,736,204,811
NOV. 6	$74,569,916	$124,458,229	$1,239,796,663	$3,297,380,003	$4,736,204,811	($65,398,932)	$4,670,805,879