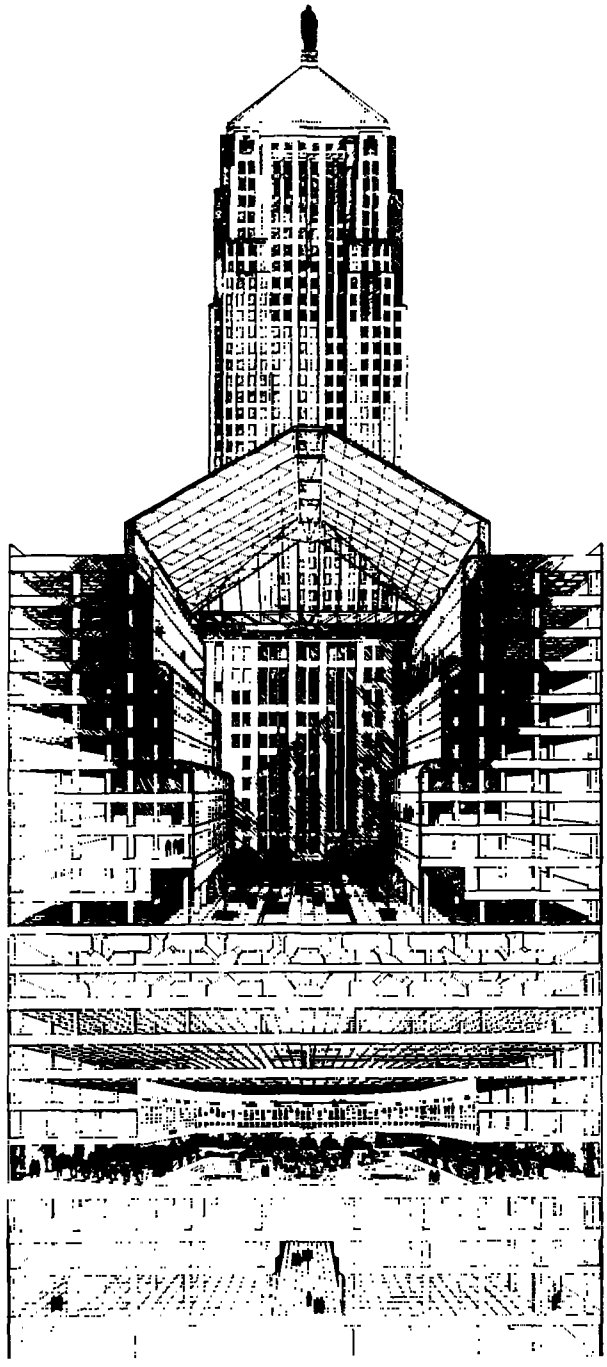
The Chicago Board of Trade's Response to the Presidential Task Force on Market Mechanisms



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REPORT OF

THE BOARD OF TRADE OF

THE CITY OF CHICAGO

TO THE

PRESIDENTIAL TASK FORCE

ON MARKET MECHANISMS

NOVEMBER 25, 1987

INTRODUCTION

The events of October, 1987, spotlighted the value of and need for futures exchanges in providing risk management services to institutions and individual investors. The unprecedented volatility in the financial markets during this period reflected an environment of great risk and uncertainty. The linked influence of international markets and the critical role of fundamental economic factors such as the U.S. budget and trade deficits, currency fluctuations and inflation became evident.

These extraordinary events tested the futures market system and challenged the exchanges to continue to operate efficiently and effectively. As this report documents, the performance of the Board of Trade of the City of Chicago and the Board of Trade Clearing Corporation during this period was exemplary. The report contains three parts.

Part I provides a background description of the Chicago Board of Trade, the Board of Trade Clearing Corporation, the futures markets, the clearing and margining process, and the surveillance role of the Exchange's Office of Investigations and Audits.

Part II provides a detailed chronology of the Exchange's and the Board of Trade Clearing Corporation's operations during the extremely volatile period from Wednesday, October 14 through Thursday, October 22, 1987.

Finally, part III presents the Exchange's conclusions and recommendations.

In addition, various factual appendices are attached, including a bibliography of relevant reference materials.

I. BACKGROUND

A. The Chicago Board of Trade and Futures Markets

Organized in 1848, the Chicago Board of Trade is the world's oldest and largest futures exchange. Today, the Exchange is a licensed commodity exchange subject to the regulatory oversight of the Commodity Futures Trading Commission ("CFTC") and the Commodity Exchange Act (7 U.S.C. Section 1, et. seq.).

The Board of Trade is a self-regulatory membership association comprised of 1402 Full Members, 713 Associate Members and 1372 Membership Interest holders. The Exchange provides centralized markets for trading futures and/or options on futures contracts on a variety of agricultural and financial commodities. Among these products are such traditional contracts as Wheat, Corn, and Soybeans, as well as the more recently instituted financial futures contracts such as Treasury Notes and the Major Market Index and the most actively traded futures contract in the world, U.S. Treasury Bonds. Contracts are traded on the floor by the Exchange's members; non-members participate in the Exchange's markets through member brokerage firms such as Merrill Lynch and others. Members who execute customer orders are known as "brokers", while members who trade for their own account are known as "locals" or "floor traders."

The Board of Trade, Chicago Mercantile Exchange and New York Mercantile Exchange combined hold a 90% share of the domestic futures market and over a 75% share of the highly competitive international futures market.

Futures markets provide invaluable risk transfer and price discovery services to market participants including commercials and managed funds. The mechanisms by which this is accomplished are described below.

1. Risk Transfer

Futures exchanges provide a central market for the transfer of price risk. A futures contract is an agreement to take delivery or to make delivery of a standardized quantity and quality of a certain commodity during a particular month in the future at a specified price. This price is determined by intensely competitive open outcry auction in a trading pit or ring on the exchange floor.

The strong demand for immediacy in the transfer of price risk is met by the open outcry auction markets, where market makers (locals) and brokers compete. No system works more

efficiently, particularly in volatile markets. The open outcry system, as exemplified by the Board of Trade's U.S. Treasury Bond futures contract, is the most liquid financial market and the most efficient price risk transfer mechanism in the world.

By buying or selling futures contracts - contracts that establish a price level now for items to be delivered later - individuals and businesses insure against adverse price changes in the interim. This is called hedging. A hedger takes a position in the futures market to shield a commitment he has made or plans to make for the actual commodity.

Hedgers are concerned with the production, processing, ownership or distribution of a commodity. For example, farmers, processors, money managers, merchandisers, banks, pension funds, grain elevators, and manufacturers may be considered hedgers.

Cash and futures prices tend to move in a roughly parallel pattern since they react to the same supply/demand factors. The difference between the cash price and the futures price is called the basis. The basis tends to be more stable and predictable than the actual cash and futures price levels. The stability of the basis makes for effective hedging.

For example, many financial institutions, including primary dealers, pension funds, insurance companies and banks, use the Chicago Board of Trade's U.S. Treasury Bond futures contract to manage interest rate risk. Because Treasury bonds ("T-bonds") respond to many of the same economic factors that affect other long-term debt instruments, financial managers may use T-bond futures to manage the risks associated with Treasuries and a variety of other corporate, mortgage, and municipal obligations. Thus, a primary dealer who has purchased T-bonds at a Treasury auction and who is concerned that interest rates will rise and bond prices decline may sell T-bond futures to hedge that risk. If bond prices decline, the profits from the short futures position will offset the losses on the long-term debt instrument.

Similarly, institutions use the Major Market Index ("MMI") futures contract to protect against price erosion in their equity portfolios. The MMI closely tracks the Dow Jones Industrial Average. Portfolio managers may sell MMI futures to protect against price decline in their blue-chip portfolios. If stock prices decline, losses will be offset by gains in the futures position.

To ensure that hedgers who want to transfer risk can do so, futures exchanges rely on competition between market makers. These market makers may be hedgers on the other side of the market or they may be speculative market makers. Market makers accept the price risks that hedgers wish to avoid. They assess likely price movement and risk venture capital for the opportunity to profit on an accurate forecast of that movement. By competing with each other, market makers provide a market in which risk can be transferred easily; competition among them narrows the bid-ask spread and dampens extreme price volatility. The presence of a substantial number of speculators also increases the capital available to absorb the risk that hedgers seek to avoid.

It is important to note that U.S. futures markets operate under Congressionally-mandated speculative position limits which are intended to restrict a single speculator's excessive influence on the market and balance the need for liquidity against the risk of excessive leverage. No other marketplace has these speculative position limits; United States equity securities markets do not impose such limits.

Most futures contracts are cancelled by opposite (and, therefore, offsetting) transactions prior to delivery. Once a futures contract has served its purpose - providing temporary price protection for a hedger or offering profit opportunity for a speculator - most market participants make offsetting purchases or sales, thereby eliminating their delivery obligations. Less than 3% of all futures trades result in delivery. Those who wish to make or take delivery must follow a strictly-defined procedure set by the exchange.

2. Price Discovery

Futures exchanges do not set prices. They are free markets where the forces that influence price are brought together in an open outcry auction. As the needs and expectations of hedgers and speculators converge on the exchange floor, trades are made and prices are discovered.

Both long and short range factors influence price. Long-range factors include government grain price-support programs; credit conditions in domestic as well as foreign economies; varying costs of production, which cause changes in the price of the final product; and population increases, which will increase demand. Some short-range factors include weather and crop conditions, the general level of interest rates, and the international exchange values of currencies.

Price advances are generally sparked by a shortage of supply, but eventually such advances collapse because higher prices encourage production and reduce demand. Free price movement is the most effective form of allocation.

At exchanges, supply and demand along with other factors are translated into a single piece of information - a price. Competitive price discovery is a major economic function and benefit of futures trading.

3. Order Flow

Underlying the apparent commotion of the open outcry auction on the exchange floor is an elaborate system of computerized recordkeeping, financial controls and audit trails unmatched in any other marketplace. When an account executive receives an order from a customer, he immediately sends it by direct transmission to the exchange on which the order is to be executed or to the appropriate branch of the commission house. At the branch office, an order form is completed, given an identification number and time-stamped. (Orders are time-stamped at various other stages along the order route as well.) The operator at the branch office is connected by phone to a clerk on the floor of the exchange. The clerk writes up the order, time-stamps it again and signals it into or has it delivered to a broker in the pit.

The broker announces the order and looks for a trader who will buy or sell. Offers to buy or sell are made by open outcry so that any trader in the pit can take the opposite side of the trade. Orders may be filled by local market makers or other brokers with opposing orders. Each trader lists completed transactions on a trading card or order form. The card or order shows the quantity, the commodity, the delivery month of the contract, the price, the clearing number of the firm that is the other principal, the initials of the other brokers, and an alphabetic symbol that indicates the half hour in which the trade was executed. The completed customer order form is returned to the desk and time-stamped. These trading cards or order forms constitute the original record and from them the essential data are transferred to the offices of the firms involved.

The firms submit this information to the clearinghouse where, as detailed hereafter, all trades are matched and where gains are paid and losses are collected daily.

B. The Clearing Process and Margins

Contracts traded on a futures exchange are cleared through a clearing organization (the "clearinghouse") which assures the financial integrity of each trade by becoming the buyer to each clearing member seller and the seller to each clearing member buyer. In essence, the clearinghouse acts as a third party guarantor on all transactions. Trades are submitted to the clearinghouse through its member clearing firms, which act on behalf of the parties to the trades. The Board of Trade Clearing Corporation ("BOTCC"), established in 1925 as an independent entity, is the clearinghouse for all Chicago Board of Trade contracts. In 1986, the BOTCC also became the clearinghouse for all contracts traded on the MidAmerica Commodity Exchange and the Chicago Rice and Cotton Exchange, which are affiliated with the Board of Trade.

The concepts of margin and daily settlement are unique to futures markets and fundamental to the financial integrity of the clearing process. Futures margins are a performance bond required of both sellers and buyers to guarantee that they will respectively make or take delivery of the commodity represented by the futures contract unless the obligation to do so is offset by an opposite transaction.[1] Coupled with the daily official settlement process, futures performance bond margins ensure that each day's market obligations are settled in full with cash. No credit is extended.

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[1] Performance bond margins in the futures industry should not be confused with credit margins in the equity securities industry. A credit margin on a stock purchase is a down-payment, or a percentage of the actual purchase price, made by the purchaser to the party who loaned him the remaining funds to purchase the stock. Upon the down-payment of credit margin, full ownership rights in the purchased stock are transferred to the purchaser. In contrast, margins are required for futures as a performance bond and are paid by both buyers and sellers. Futures performance bond margins do not involve any extension of credit, nor do they result in any transfer of ownership of the underlying commodity. Critically, futures margining occurs immediately and is marked-to-the-market daily in contrast to securities margins for which payment is not due for seven days.

Daily settlement refers to a two step process that involves (1) the daily determination of whether an account has sustained gains or losses by comparing the prices at which futures contracts in the account were entered with the contracts' respective "settlement price" (this comparison is referred to as "marked-to-market"); and (2) the daily distribution of gains and losses based on this determination. Settlement prices are established after each day's trading session and reflect market conditions at the close of the day's trading. Daily settlement of accounts occurs at both the clearing firm and clearinghouse levels.

A customer is responsible to his clearing firm (typically a brokerage house such as Shearson where he has his trading account) for performance of his obligations under a futures contract; customers, therefore, must deposit margins with their clearing firms. Clearing firms, in turn, are responsible to the clearinghouse for performance on all contracts they submit for clearing. The clearinghouse does not look beyond the clearing firms to the parties to a futures contract for performance on the contract. The clearing firms, in essence, guarantee performance to the clearinghouse on all trades - customer, floor trader and proprietary. All trades must be submitted to the clearinghouse. Clearing firms, therefore, must deposit margins with the clearinghouse, and are legally obligated to make these payments regardless of whether they have collected margin from their customers. For this reason, membership in the clearinghouse is limited to firms that meet stringent financial requirements.

Clearing firms are required by exchange rules to impose minimum margin requirements on their customers. Exchanges establish minimum margin requirements at levels sufficient to cover the probable risk of daily loss under market conditions existing at the time. Customers must make minimum margin deposits, known as "initial margin", when they enter the futures markets. Critically, when customer margin is reduced below an exchange-specified maintenance level through the daily settlement process as a result of adverse price moves, the customer must deposit additional funds to bring the margin deposit back to the initial margin level. A clearing member may liquidate the futures positions of a customer who fails to meet a margin call for additional funds. A clearing firm may be disciplined by an exchange for failure to collect adequate margin in accordance with the exchange's rules.

While minimum margin levels are set by the exchanges, clearing firms can and normally do require margin deposits at substantially higher levels. Clearing firm margin requirements reflect not only price movements but the ability of a customer to meet the contractual obligations that would arise with an adverse price movement. A clearing firm's responsibility to the clearinghouse for a customer's obligations ensures an accurate assessment of a customer's creditworthiness, the establishment of appropriate margin requirements for each customer and the prompt collection of margin from each customer.

At the clearinghouse level, two types of margin are required from clearing firms: original margin and variation margin.

"Original margin" is the performance bond required when positions are established. As with exchange margins, original margin requirements are determined on the basis of probable risk of loss. Since there is no price risk associated with sales that are offset by identical purchases or vice versa, original margin at the BOTCC is required only on a clearing firm's net long (purchases) or short (sales) position. BOTCC original margin may be posted in the form of cash, United States government securities, and/or letters of credit issued by an approved bank. The clearinghouse segregates original margin deposits in a separate account. The clearinghouse may increase original margin requirements when market conditions warrant, and issue calls for additional original margin payments from selected members if conditions warrant. These funds remain in a separate pool as long as positions are open. The clearinghouse will draw upon these segregated original margin deposits only if a clearing firm fails to meet a variation margin call.

"Variation margin", also known as "pays", refers to the funds that a clearing firm must pay to the clearinghouse daily to settle losses in the firm's account at the clearinghouse. Profits, or "collects", are distributed from these fund payments. The BOTCC requires variation margin deposits to be in the form of cash; no other form is acceptable. The BOTCC issues calls for variation payments at least twice a day: once at 6:30 a.m., Chicago time, as part of the daily official settlement process; and once at 2:00 p.m., Chicago time. No marketplace other than futures makes these daily marked-to-market margin collections. A description of the BOTCC's clearing operations illustrates the speed and efficiency with which margin obligations are determined and collected. The following steps are involved in this process:

1. Throughout the trading day, including the evening trading session[2], the BOTCC processes and matches the day's trades. The full processing and matching process is completed by 8:00 p.m., Chicago time, each day.

2. From the information generated by this matching process, the BOTCC computes the original margin requirements for every clearing firm account on its books as part of the daily official settlement process. The BOTCC also calculates the gains and losses experienced in each account as a result of price movements to determine the amount of variation margin, or "pays", required to settle losses and the amount of profits, or "collects", that it will pay out.

3. Original margin and pay and collect information is made available to clearing members and their banks by 11:00 p.m., Chicago time, each night. An official call for original and variation margin based on this information is issued at 6:30 a.m., Chicago time, the following day.

4. Clearing firms must pay to the BOTCC all original and variation margin requirements by 7:00 a.m., Chicago time.

5. The BOTCC disburses "collects" to clearing firm accounts that experienced a gain. These payments are made out of the variation margin payments received by the BOTCC, resulting in an official zero balance of pays and collects each day.

6. At 2:00 p.m., Chicago time, each trading day, the BOTCC performs a separate intra-day calculation of gains and losses based on the positions held by a clearing firm on the previous day and on all matched trades executed the previous night and prior to 1:30 p.m., Chicago time, on the current trading day.

7. After 2:00 p.m., Chicago time, the clearinghouse issues calls for variation margin to settle the losses calculated at 2:00 p.m.

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[2] The Board of Trade began offering an evening trading session last spring for certain financial contracts. An evening trading session is treated as the start of the following day's daytime session.

8. A clearing firm must satisfy this intra-day call for variation margin payments within sixty minutes.

9. In periods of great volatility, the BOTCC will perform additional intra-day calculations of gains and losses and require additional variation margin payments. Margin calls must be satisfied within sixty minutes. These extra variation payments are designed to insure collection of all losses due to market movements that may have accrued between regularly scheduled variation calls.

As illustrated, the BOTCC maintains tight control over margins as prices fluctuate, thereby assuring that sufficient margin money will be on deposit at all times to preserve the system's financial integrity.

The daily settlement process of futures demands speed and flexibility in the setting of performance bond margins so that the overall goal of minimizing risk, including default risk, can be met. For this reason, performance bond margins for customers are set by the exchanges through committees which are able to assess and respond quickly to changing market conditions. Similarly, original margin requirements for clearing firms are set by special clearinghouse margin committees. These committees, which are comprised of exchange members who have unique and valuable market expertise, can meet at a moment's notice to examine the adequacy of performance bond margin levels in light of current market volatility and can change such levels to reflect daily price changes. The incentive to minimize market disruption due to default assures that appropriate margins levels are set. The Chicago Board of Trade made 163 margin changes on 79 separate occasions during the first 10 months of 1987.

In sum, the futures markets have developed highly sophisticated, extremely efficient systems for the rapid collection of margins. These systems have met historically, and are currently meeting, their objective of ensuring market integrity. Since the formation of the BOTCC in 1925, no clearing member has defaulted and not one cent of customer funds has been lost due to default.

C. The Office of Investigations and Audits

To succeed, an exchange must be able to assure the public of the integrity of its markets. This incentive fuels the system of financial market regulation in the United States and serves as the basis for the requirement in the Commodity

Exchange Act that all futures contracts must be traded on an exchange.

Futures exchanges are self-regulating; they make and enforce rules, set margins, provide for the resolution of disputes between members and monitor the financial responsibility of members and member firms. Comprehensive exchange rules govern a wide range of areas, including but not limited to capital and recordkeeping requirements for member firms that handle customer funds, trading practices, handling of customer orders, and internal disciplinary procedures. The exchanges' self-regulatory activities are overseen by the Commodity Futures Trading Commission. Exchange rules are subject to CFTC approval and exchange rule enforcement is subject to CFTC scrutiny.

The Chicago Board of Trade's commitment to protecting the public and the integrity of its markets is paramount. The Board of Trade continually monitors member and member firm compliance with its rules and regulations, as well as those of the industry, through its Office of Investigations and Audits ("OIA"). As part of its surveillance efforts, the OIA is constantly in contact with other exchanges, the National Futures Association and the CFTC to exchange relevant financial and other information. Possible rule violations are referred to the appropriate Exchange disciplinary committee or the Board of Directors for disposition. What follows is a brief description of the five departments of OIA and the Exchange's disciplinary bodies.

1. The Financial Surveillance Department

The OIA's Financial Surveillance Department ensures that all Board of Trade member firms comply with the Exchange's capital rules and capital guidelines.

The Financial Surveillance Department routinely analyzes the financial health of member firms with the Simulated Analysis and Financial Exposure ("SAFE") system, the most sophisticated computerized financial surveillance program in the futures or securities industries. The SAFE system evaluates the risk of member firms at current market levels and at a variety of combinations of different market and volatility levels. The SAFE system generates approximately one hundred different reports, including but

not limited to pay/collect information[3], margin data, and large trader reports. (See, e.g., Appendix 1.) The OIA shares use of the SAFE system with the Board of Trade Clearing Corporation, which developed the system.

Any actual or potential problems discovered during the analysis results in an immediate phone call to the firm or an on-site financial review. Member firms are also required by Board of Trade regulations to notify the Financial Surveillance Department of changes in key financial data.

2. The Market Surveillance Department

The Market Surveillance Department ensures the orderly expiration of all Board of Trade contracts and monitors trading activity in order to detect attempts at price manipulation, squeezes of a commodity or corners in a market. To accomplish these tasks, Market Surveillance compiles and reviews information relating to volume, open interest, current cash commodity prices, available stocks, deliverable supply, and positions held by clearing member firms and large traders. Market Surveillance's analysis of this information identifies futures/cash price relationships which may potentially be disruptive to the marketplace. Statistical reports including historical market data are also compiled weekly.

During a month in which a future contract is eligible for delivery or expires, Market Surveillance may be in frequent contract with major participants. With respect to stock index futures contracts, Market Surveillance communicates with members of an intermarket surveillance group that includes staff from the New York Stock Exchange, the American Stock Exchange, the Chicago Mercantile Exchange, the Chicago Board Options Exchange, the Philadelphia Stock Exchange and the Kansas City Board of Trade.

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3 The SAFE system currently reports this information for Board of Trade and Chicago Mercantile Exchange positions; in the near future, this information will be reported for all U.S. futures exchanges and the Chicago Board Options Exchange.

3. The Audits Department

The OIA Audits Department conducts biennial reviews of the books and records of each Board of Trade member firm that is registered as a Futures Commission Merchant ("FCM") to determine compliance with Exchange rules and regulations. FCMs are firms that deal with public customers and handle customer funds. Audits focus on the firms' financial and compliance procedures. During a financial audit, a firm's financial condition is analyzed, along with the composition of balance sheets and capital computations to verify that the firm has appropriate procedures to ensure the continuous submission of accurate financial information to the Exchange. Also, customer balances are reviewed and the proper segregation of customer funds is verified.

The compliance portion of the audit examines a member firm's procedures for customer order flow, margins, opening an account, account documentation and discretionary accounts. Cash transactions are reviewed to establish that the firm is properly accounting for customer transactions. The Audits Department also makes surprise sales practice reviews of member FCMs' branch offices and guaranteed introducing brokers. These reviews cover the solicitation of customer accounts and customer complaints.

4. The Department of Investigations

The Investigations Department is responsible for investigating inquiries from customers and referrals from members, member firms and the CFTC concerning any market activity or trade practices which involve potential violations of Board of Trade rules and regulations. These investigations involve a comprehensive process of obtaining statements from witnesses and parties involved, conducting trade reconstruction reviews and analyzing trading documents. The department may close cases administratively when there is insufficient evidence of rule violations. All cases involving potential rule violations are submitted to the appropriate Exchange disciplinary committees. The department is responsible for the preparation and prosecution of cases involving its investigations.

The department is also responsible for initiating and conducting Trade Practice Investigations ("TPIs") on a continuous contract market rotation basis. TPIs involve

a reconstruction of the trading activities of members and member firms to detect patterns of conduct which may indicate rule violations. TPIs are conducted utilizing the Computerized Trade Reconstruction System ("CTR") which is the most sophisticated computerized trade practice surveillance system in the industry. Developed by the Board of Trade in 1986, CTR is able to pinpoint who traded what quantity of what contract with whom at what price and what time to the nearest minute or less. Of paramount importance is the fact that all this data is available to Exchange staff and the CFTC the very next business day. No audit trail in any other marketplace can provide such accurate data so quickly. Nevertheless, the department is continually monitoring and refining the CTR system to improve market surveillance capability. (See Appendix 13.)

The department also maintains a floor surveillance program that involves directly observing floor trading activity on a daily basis.

5. The Regulatory Reporting and Research Department

The Reporting and Research Department is responsible for maintaining the Board of Trade's CTR system. The department is also responsible for maintaining OIA's other various computer systems and coordinating the department's interaction with the CFTC.

6. Disciplinary Authority

The OIA works in conjunction with two exchange governing committees comprised of CBOT members, the Business Conduct Committee and the Floor Governors Committee. The combined efforts of the OIA and these committees ensure the financial security, stability and integrity of the Exchange. These committees review audit, financial and investigative reports. If they find that Exchange rules have been violated, the committees may impose penalties ranging from fines to suspension to cease and desist orders, or may refer more serious matters to the Board of Directors, which holds broader fining powers and the power of expulsion.

The combination of all these aspects of the marketplace -- the highly competitive open outcry auction market; the sophisticated clearing and margining mechanism; and the unmatched surveillance and audit trail of the Office of Investigations and Audits -- contributed to the Board of Trade's ability to function without failure, closing or default through the unprecedented market turbulence of October, 1987. What follows is a daily chronology of the Exchange's market activity.

II. A CHRONOLOGY OF EVENTS AT THE CHICAGO BOARD OF TRADE October 14-22, 1987

In the period leading up to October 14-22, futures and options trading at the Chicago Board of Trade ("CBOT") were extremely active. In September, 13.33 million contracts were traded, making it the second most active month in Exchange history. The two largest contracts, Treasury Bond futures and Treasury Bond options, traded 7.77 million and 2.37 million contracts, respectively. The Major Market Index contract ("MMI"), the CBOT's stock index futures contract, traded a monthly record 328,222 contracts in September. Volume of these three contracts continued at high levels in the first part of October.

Futures and options market activity is the highest when economic uncertainty is the greatest; this is when the futures markets' risk shifting services are needed the most. There were numerous areas of uncertainty in the U.S. economy at this time which was reflected in the active trading at the CBOT and other financial exchanges around the world.

The U.S. merchandise trade deficit was a concern. On October 14, a deficit of $15.68 billion was announced, nearly 50 percent greater than a year earlier. The federal budget deficit was down to $148 billion from $221 billion in late 1986 but its future direction remained uncertain. The dollar's fall in the past year of 9 percent against the Japanese yen and 10 percent against the German mark raised fears that foreign capital would soon abandon U.S. markets. The money supply (M1) had remained essentially unchanged from April and the discount rate rose from 5.5 to 6.0 percent. The tight money policies of the Federal Reserve, pursued to guard against inflation, were thought by some to be a double-edged sword. These factors, combined with uncertainties caused by the talk of higher taxes, strife in the Middle East and concern about trade protectionism--an important factor related to the 1929 stock market crash--conspired to create an economic environment of instability and uncertainty. Among the questions in investors minds was whether the current stock market levels were sustainable. Since mid-1982, the U.S. stock market as measured by the Dow Jones Industrial Average (DJIA) had been climbing steadily to historic highs. (See chart of DJIA averages, Appendix 2.)

This was the backdrop against which the CBOT opened its evening session at 6:00 p.m. on October 13.[1]

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[1] The night session on October 13 is considered the first session of the October 14 trading day.

Wednesday, October 14, 1987

Evening Session[2] (Tuesday Evening, October 13): Treasury Bond futures and options traded 12,100 and 6,935 contracts, respectively. (See Appendix 3, table of Treasury Bond futures and options volume; Appendix 4, charts/tables of daily volume and open interest-key CBOT contracts.) Futures prices closed at 80.56[3], up slightly from the 80.50 open. (See Appendix 5, table of Treasury Bond futures prices--evening and day session, Appendix 6 Treasury Bond futures volume.) Trading was in a narrow price range (High: 80.59; Low: 80.44).

Clearing Corporation Activity: At approximately 11:00 p.m. on Tuesday evening, the Board of Trade Clearing Corporation (BOTCC) issued its routine call for daily variation settlement and original margin.[4] This call totalled $156.2 million. These monies were due by 7:00 a.m. October 14. (See Appendix 7, tables showing BOTCC money flows--all sources, house, customer.)

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2 Treasury Bond futures and options and Treasury Note futures and options traded in the evening session during this period. The hours of the session were 6:00 p.m. - 9:00 p.m., Chicago time. It corresponds to 8:00 a.m. to 11:00 a.m. in Tokyo.

3 Percentage of Par ($100,000).

4 Daily variation settlement amounts for members of the BOTCC ("pays and collects") are the net of the change between the previous day's settlement price and the price at which contracts are liquidated during the current day, plus the difference between the price at which new contracts were established during the day and the current day's settlement price. Original margin is the amount of money which must be deposited when a new position is established.

Economic Events: The Tokyo Stock Exchange closed at 1:00 a.m., Chicago time, with the Nikkei index at 26,646.43, a 0.93 percent rise from the previous day. The Hong Kong Stock Exchange closed at 2:30 a.m. (Chicago) at 3,844.48, also up slightly. When the International Stock Exchange in London closed at 11:00 a.m. (Chicago), however, the Financial Times-Stock Exchange (FTSE)100 index was 2,322.90, a 1.16 percent fall from the previous day. (See Appendix 8, tables of values--major stock indices; Appendix 9, chart of October index movements; Appendix 10, chart of index movements--October 14 - 22.) Domestically, a major event on October 14 was the announcement that the August trade deficit for the U.S. had narrowed only to $15.7 billion from the July record of $16.5 billion. Estimates of the August number prior to its release had ranged from $14 to $15 billion.

Day Session: The MMI experienced sharp weakness throughout most of the session. The November futures contract opened almost 4 points lower and moved downwards in tandem with the underlying index. See Appendix 11, detailed charts showing intraday MMI futures prices and index values.)[5] The contract closed at 476.50, down 21.15 points (4.25 per cent). The Dow Jones Industrial Average ("DJIA"), suffered a 95.5 point drop, the largest single day loss on record. Volume on the NYSE was a heavy 207 million shares traded.

The losses in the equity market were largely attributed to widespread disappointment in the August trade deficit announcement, increased weakness in the U.S. dollar, and a strong rise in interest rates.

The Exchange set an all time trading volume record when for the first time in its history, more than one million contracts were traded.

Volume in MMI futures was relatively high as 23,338 contracts were traded. Open interest increased from the day before by about 8 per cent to 11,781 contracts. (See Appendix 12, detailed charts showing intraday MMI volume.)

Treasury Bond activity during the day was very high. Bond futures volume was 511,021, and bond options volume totalled 276,982 contracts, both were daily records. Futures prices dropped more than one point over the day and traded in a range of 78.56- 79.84.

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5 Note that while the NYSE opens at 8:30 a.m. (Chicago time), MMI futures open at 8:15 a.m. (Chicago time) to allow for an early morning price discovery mechanism.

Clearing Corporation: At 2:00 p.m. Wednesday afternoon, the BOTCC issued its daily call for variation margin and collected $345.6 million in one hour from clearing firms. The total of the trading day's variation margin call, daily variation settlement and original margin collection was $501.8 million.

Office of Investigations and Audits: As a result of the high volume and volatility experienced in the T-Bond futures market on October 14, 1987, the Investigations Section of OIA initiated a routine Trade Practice Investigation into the trading activity on the aforementioned day. Through a review of the day's market activity the Investigations Section selected the most volatile time bracket and reviewed it for specific potential trading abuses through the Computerized Trade Reconstruction - Plus ("CTR Plus") System. The potential abuses the CTR Plus system reviewed for were:

1. Trading Ahead
2. Crossing Orders
3. Taking the Other Side
4. Non-competitive Trading Type 1
5. Non-competitive Trading Type 2

(For a detailed explanation of these potential trading abuses and the CTR Plus System, see Appendix 13.)

The Investigations Section through on-site floor surveillance, monitored the Treasury Bond futures and Treasury Note ("T-Note") futures.

As part of its regular expiration surveillance, Market Surveillance Section of OIA reviewed the positions carried by clearing member firms in the October 87 MMI contract. (See Appendix 14.) This review indicated that no clearing member firm carried an unusually large or concentrated position going into expiration. In fact, of the six member firms with the largest percentage of open interest, only one held a proprietary position. Total open interest as of October 13, 1987 in the October 87 MMI contract was 8,397 contracts. The Market Surveillance Section also reviewed large trader positions and noted only six large traders with positions greater than 500 contracts.

On Wednesday, the Audit and Financial Surveillance Sections of OIA made nine pay/collect calls[6] and were monitoring five firms' financial condition by daily reporting.[7]

OIA also held oral discussions with the Board of Trade Clearing Corp. ("BOTCC"), Chicago Mercantile Exchange ("CME") and New York Joint Audit Committee ("JAC")[8] concerning market conditions.

There were fifteen OIA staff members involved in the investigation of the markets on Wednesday.

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6 Pay and collect calls are made to clearing member firms who had unusual pays in order to determine the cause such as whether the pay was concentrated in a few accounts or commodity contracts. During such calls, OIA inquires about deficits, margins, excess segregation and capital. Concerns raised by these calls resulted in in-field examinations of member firms.

7 Daily reporting is required of member firms who were operating at a "high risk" level. Such firms provide capital and segregation figures daily to the Exchange.

8 The Joint Audit Committee is an industry-wide organization made up of representatives of each commodity self-regulated organization responsible for financial and audit programs.

Thursday, October 15, 1987

Evening Session (Wednesday evening, October 14): Bond futures opened at 78.53, lower than the 78.66 close of the previous session. The contract traded in a narrow range, closing lower at 78.38. Total futures volume was 19,270. Bond options traded 5,216 contracts. (See Appendices 15 and 16.)

Clearing Corporation: That evening, the BOTCC issued its daily call for variation settlement funds and original margin and collected $557.6 million by 7:00 a.m.

Economic Events: The U.S. dollar dropped significantly against the Japanese yen and the German mark (See Appendix 17, table of exchange rates). The U.S. trade deficit was a factor cited in this fall by market observers. Questions were raised regarding central bank intervention to support the dollar. The Nikkei index dropped 0.87 percent over the trading day in Tokyo. The Hong Kong (Hang Seng) and FT-SE indices dropped 0.41 and 0.90 percent, respectively.

Day Session: The November MMI contract opened 2.5 points lower at 474.00 but was able to reverse itself and advance as high as 484.00 by about mid-session. However, sustained selling pressure in the afternoon resulted in an overall 9.4 point (1.97 per cent) loss. During the last hour alone, the index lost close to 11 index points. (See Appendices 18 and 19.) The DJIA declined for the session by 57.61 points. Volume on the NYSE was 263.2 million shares, making it the fourth busiest session on record.

Key factors cited for the decline include carry over selling pressure from the sharp NYSE losses the day before, weakness in the U.K. and Asian equity markets, unreassuring comments from Treasury Secretary Baker, and weakness in the bond market.

The Exchange surpassed its previous day's total volume record by more that 10% when 1,130,956 contracts were traded.

Volume in MMI futures set at an all-time high of 28,878 contracts traded. Open interest increased from the previous day by 11.7 per cent from 11,781 to 13,154 contracts. (See Appendix 20.)

Treasury Bond futures and options traded 640,217 (a new daily record) and 238,851, respectively. Futures prices closed up at 78.44 after opening at 78.06. The futures contract traded over a range of more than two points, with a high of 78.97 and a low of 76.84.

Clearing Corporation Collection: At 2:00 p.m., the BOTCC issued a variation call for $46.8 million and collected the funds within one hour. The total collections for the trading day were $604.4 million.

Office of Investigations and Audits: On Thursday, October 15, 1987, the Investigations Section, as a part of routine Floor Surveillance of the markets, monitored the open, 2:00 p.m. close, 6:00 p.m. resumption and 9:00 p.m. close of the T-Bond futures.

The Market Surveillance Section noted that October 1987 MMI open interest decreased by 100 contracts from the previous day. The six clearing member firms with the largest percentage of open positions held relatively the same position. No unusual premium or discount between the underlying index and the October futures contract were noted throughout the day.

As part of expiration surveillance, the Market Surveillance Section communicated with members of the Intermarket Surveillance Group ("ISG") who had option contracts expiring on the 16th. The members included staff from the Chicago Board Options Exchange and American Stock Exchange. Throughout this communication the Market Surveillance Section shared position information of major participants in the Index futures and options contracts.

The Financial and Audit Sections continued its intensified monitoring of member firms. These sections made eight pay/collect calls and seventeen large trader calls[9] after reviewing activity of Wednesday, October 14, 1987. The staff also was in contact with the BOTCC, CME and the Chicago office of CFTC with regard to market activity and its effect on financial conditions of member firms. Five firms were being monitored for daily reporting.

OIA staff involved in the monitoring of the markets increased to eighteen.

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[9] Large trader calls are made based on individuals who had reportable positions in volatile contracts. Staff inquiries included gathering information about the accounts' equities, margin requirements and margin calls. Again, concerns raised by these calls resulted in in-field reviews of a firm.

Friday, October 16, 1987

Evening Session (Thursday evening-October 15): Bond futures continued their decline, opening about one-half point lower from the previous session's close. The contract's traded volume was 21,967 contracts at prices ranging from 77.66 - 78.16. Bond options traded 4,019 contracts. The 2.39 percent drop in the DJIA during the day, uncertainty about the direction of the dollar and the possibility of a higher discount rate were cited as influencing factors. (See Appendices 21 and 22.)

Clearing Corporation: The BOTCC issued a call for $506.1 million Thursday evening and daily variation settlement and original margin funds were received as required by 7:00 a.m.

Economic Events: The Tokyo and Hong Kong stock markets were down 0.23 and 1.19 percent, respectively, overnight. The International Stock Exchange in London closed because of power failure associated with a major storm. The Fed added reserves as expected, reducing concern over the possibility of a higher discount rate. The dollar initially rose slightly against major foreign currencies but closed lower against some.

Day Session: Friday signaled the expiration if the October MMI futures. The November MMI contract opened slightly higher, staged a brief advance but quickly encountered selling pressure. After reaching a high of about 470 in the first half-hour, the index steadily fell throughout the session. Once again, the decline was especially sharp during the last hour of trading. November MMI futures closed at 445.00, down a record 22.10 points (4.70 per cent) from the day before. (See Appendices 23 and 24.) In a similar manner, the DJIA experienced a record loss of 108.4 points. NYSE volume hit an all-time high of 338.5 million shares traded.

Major reasons given for the weakness include concerns over rising interest rates, worries over the trade and budget deficits, inflation fears, and concerns of a looming recession.

MMI futures volume set another record as 31,822 contracts were traded. (See Appendix 25.) Open interest increased to 13,603 contracts, a gain slightly in excess of 3 per cent. Note, however, that October 16 was the expiration day for the October MMI contract. Given that MMI volume is typically higher on expiration days, this was an important factor regarding the record activity observed in the futures. Over the past three days alone, November MMI futures lost 52.65 points or about 11 percent, and the DJIA experienced a 10 percent drop of 261.4 points.

Treasury Bond futures opened at 78.06, higher than the close of the previous session but closed slightly lower at 77.94 after trading in a 77.87 - 78.97 range. Volume for the day was 365,532. Bond options traded 98,451 contracts.

Clearing Corporation: The 2:00 p.m. variation call of the BOTCC was for $98.7 million, bringing the total collections for the trading day to $604.8 million.

Office of Investigations and Audits: October 16, 1987 was the expiration of the October'87 MMI future contract. From previous expiration reviews, Market Surveillance anticipated that the participants going into expiration would probably let their futures positions cash settle on the close. Open interest decreased nearly 400 contracts from Thursday. One clearing member firm increased its proprietary position from the previous day by 1,300 contracts. The participants appeared to be sophisticated arbitrageurs or CBOT members holding spread positions in the next deferred futures contracts. Two members of the Market Surveillance staff and one member of the Investigation staff were present on the Exchange Floor during the last half hour of trading and noted light volume on the close.

The Market Surveillance Section reviewed October MMI futures versus the MMI index at one minute intervals for the entire day. From 8:15 a.m. to 8:45 a.m. the futures were slightly overvalued to the index. Further review of volume by Customer Type Indicator ("CTI") revealed no unusual activity (See Appendix 26). Later in the day, from approximately 2:30 p.m. to 2:45 p.m., both the value of index and futures fell. The futures lost nearly 25 points and the index lost 15 points before both rebounded 20 and 10 points, respectively, before 3:00 p.m. Again, review of volume by CTI code indicated approximately 45% of the volume between 2:30 p.m. and 3:00 p.m. was attributable to locals trading for their own accounts and 32% by outside customers.

The Investigations Section, through Floor Surveillance, monitored the open and close of the Treasury Bonds futures. In addition, a representative of the Investigations Section was present in the Treasury Bond and Treasury Note trading pits for a period of time during the day trading session. The Investigations Section again initiated an investigation through the CTR Plus System into the trading activity in Treasury Bond futures during the most volatile time bracket.

The Audit and Financial Surveillance staff was once again in contact with the CME and other commodity contract markets regarding the market conditions. Additionally, three pay/collect calls and one large trader call were made. Five firms continued to be on daily reporting to the Exchange.

OIA did not receive any complaints or concerns regarding the expiration of the October contract. It was considered to be a normal non-quarterly expiration.

Twenty-two staff members were involved in reviewing the markets.

Monday, October 19, 1987

Evening Session (Sunday evening-October 18): Treasury Bond futures traded 28,892 contracts as prices opened lower at 77.50 (compared to 77.94 at the previous close) and dropped further over the session to close at 77.38. Prices ranged between 77.16 and 77.75. Bond options traded 6,905 contracts. Influential factors cited by market observers included the sharp drop in the U.S. stock market on Friday and statements over the weekend by Treasury Secretary Baker that he preferred a lower dollar to higher interest rates. (See Appendices 27 and 28.)

Clearing Corporation: The BOTCC issued calls that evening for $251.7 million. The funds were received by 7:00 a.m.

Economic Events: The value of the dollar fell sharply at first, a drop which analysts attributed to Secretary Baker's statements over the weekend. Later, the dollar stabilized as West German officials stated that cooperation among the G-7 nations on currency stability would continue. Overseas, stock markets fell 2.35 percent in Tokyo, 11.12 percent in Hong Kong and 10.80 percent in London.

Day Session: The weakness in the international equity markets coupled with the events of the last week, led to a massive amount of sell orders prior to the opening in both the underlying and futures markets. The November MMI contract opened at 441.00 down 4.0 points from Friday's close. (See Appendices 29 and 30.) Within an hour, it fell an additional 46 points to about 395 (about a 10% decline). The futures went to a 30 point discount to the cash index. A midmorning rebound in the futures eliminated the discount as the November contract reached almost 430. However, continued heavy selling in the underlying market led to further weakness and a sharp discount once again persisted throughout most of the afternoon. The November MMI settled at 336.50 down a record 108.50 points (24.4 per cent.) The DJIA finished 508.3 points lower at 1738.41 (down 22.61 percent). Volume on the NYSE set an all-time high of 604 million shares traded, almost three times the daily average for the previous week. MMI futures volume however reached only 19,685 contracts or about two-thirds of the average volume for the prior week. While the NYSE dollar volume on the 19th was approximately $24 billion MMI futures dollar volume equaled about $1.9 billion. In other words, the role of MMI futures in this record decline was relatively minor. Open interest declined sharply to 6,666 from Friday's 13,603 contracts. This latter decline reflected the fact that over 8,000 October contracts expired on the previous trading day. (See Appendix 31.)

In addition, the steep discounts that persisted throughout the session gave a good indication that futures related program trading (stock index arbitrage) was not occurring. While the significant price discrepancies between the equity and futures markets would have under normal conditions led to profitable arbitrage situations, the massive volume in the underlying stock market and uncertain conditions made this practice near impossible.

Specifically, note that while MMI futures opened on time, lengthy opening delays existed for a large number of major equities. 87% of the DJIA stocks failed to open on time. One hour later, 9:30 (Chicago time), 37 percent of the DJIA issues had not yet opened. (See Appendices 32 and 33, tables on DJIA stocks not trading.) Thus, during the crucial first hour of trading, the ability to put together a basket of stock issues replicating the MMI did not exist.

Total exchange volume again exceeded one million contracts as 1,061,279 contracts were traded.

Treasury Bond futures and options traded 483,949 and 239,129, respectively. Bonds opened at 76.47, down from the 77.38 close of the evening session. After trading in a wide range of 78.06 - 76.21, they closed sharply higher, at 77.75.

Other CBOT contracts traded actively as well. Intraday volatility was particularly high in the agricultural contracts and prices closed sharply lower. Silver volume and volatility were also relatively high. (See Appendix 34.)

Clearing Corporation: Market volatility prompted a special intra-day variation call of $57.2 million between 10:00 a.m. and 11:00 a.m. The funds were received within one hour. The normal call at 2:00 p.m., again requiring one hour payment, was for $152.6 million. Total collections for the trading day totalled $461.4 million.

Office of Investigations and Audits: The Market Surveillance Section reviewed the ending positions of participants in the October MMI contract and noted that most participants let their positions cash settle on Friday afternoon. As the events of the stock market progressed during the day, Market Surveillance reviewed participants' activity in the November MMI as of the previous Friday, October 16, 1987. Total open interest in the November contract was low at 4,999 contracts. Six clearing member firms carried 60% of total November open interest. Throughout the

day, the Market Surveillance Section continued to monitor the events in the stock market. Review of the November contract versus the underlying index revealed specific intervals during the day in which the futures were significantly undervalued to the index. (See Appendices 29 and 30.) Specifically, from 8:15 a.m. to 9:45 a.m., the futures were under the index by as much as 30 points. A breakdown of volume at that time revealed approximately 46% of the activity by locals, 32% by customers and 16% by proprietary accounts. (See Appendix 35.)

Market Surveillance also reviewed the activity from 12:00 p.m. to 1:30 p.m. when the futures were again as much as 20 points under the index. Review of trading volume revealed locals accounted for approximately 43%, customers 29% and proprietary accounts 21%. Once again, Market Surveillance noted no single customer was a primary participant during this time period.

From 1:30 p.m. until the close, the futures continued to trade at a discount to the index with relatively the same percentage of activity by locals and customers.

The October 19, 1987 trading session opened on the evening of October 18, with the December Treasury Bond futures contract having a wide-opening range. The Investigations Section was present on the Exchange Floor at the open of this market and noted the unusually wide opening range and an unusually high volume for an evening session. A combination of the investigator's observations, the wide opening range, and the high volume led to the initiation of a routine investigation into the first 1/2 hour trading activity. An investigator continued to be present on the Exchange floor for a majority of the evening trading session.

When the T-Bond market resumed trading in the morning, an investigator was once again present to monitor the activity. Investigators continued to periodically monitor activity in the market throughout the day.

The November '87 MMI futures contract also had a wide opening range on Monday morning. As a result, a routine investigation into the open was initiated. Utilizing the CTR Plus system, the Investigations Section reviewed this activity for trading ahead, crossing orders, taking the other side and other non-competitive trading. No significant patterns of trading abuses were noted. In addition, an investigation was initiated to include the trading activity in all half-hour brackets. The Investigations Section continued its increased floor surveillance due to the volatile markets.

The Audits and Financial Surveillance staff increased the number of pay/collect calls to thirty-three prompted by early morning discussions with the Board of Trade Clearing Corporation and the volatile market conditions. In addition, OIA initiated eight in-field financial reviews[10]. These in-field financial reviews arose from the pay/collect calls and two large trader calls.

OIA was also in communication with the Business Conduct Committee (BCC), CME, both the Chicago and Washington staff of the Commodity Futures Trading Commission, domestic commodity exchanges (through the JAC), the NYSE and the CBOE.

The CBOT's Margin Committee and Board of Directors were polled to raise the minimum margin requirements on the MMI. The changes went into effect at the opening of business of Tuesday, October 20, 1987. The changes increased the initial, maintenance and hedge margins in the MMI-Maxi from: $4500/3000/3000 to $7000/5000/5000. The Board of Trade Clearing Corporation also raised its minimum margin requirements on the Major Market Index.

OIA staff involved in monitoring the situation increased to fifty-three, including nine staff members in New York.

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[10] In-field financial reviews are conducted to determine if member firms are currently in compliance with financial, capital and segregation statements.

Tuesday, October 20, 1987

Evening Session (Monday evening, October 19): Treasury Bonds opened limit up and stayed there for most of the session. Prices dropped slightly at the end of the session, closing at 80.28. (See Appendices 36 and 37.) A new exchange volume record for the evening session was set when 77,194 contracts were traded. Treasury Bond futures and options traded 28,269 and 41,117, respectively.

Clearing Corporation: The daily BOTCC call for variation settlement and original margin totalled $632.1 million, the highest call of this period. Funds were received by 7:00 a.m.

Economic Events: Analysts attributed the sharp rise in the evening session prices to investors leaving the stock market and entering the bond market after the stock market's fall on October 19. The rise in the dollar was also cited. Stock markets around the world continued to fall. Tokyo registered its largest drop of the period, 14.9 percent. Hong Kong closed, unable to cope with the volatility. London closed 12.26 percent lower. The Federal Reserve affirmed its "readiness to serve as a source of liquidity to support the economic and financial system."

Day Session: November MMI futures opened at 360.00, up 23.50 points from Monday's close and in general displayed strength early in the session. In a similar manner, the underlying market moved higher in the early morning as investors responded favorably to the Federal Reserve's statement. (See Appendices 38 and 39.)

Except for midmorning selling pressure in both the underlying and futures, the MMI staged a strong comeback. The November contract finished up 28 points at 364.50, an 8.3 per cent gain. Volume in the NYSE again set a record as 608.1 million shares were traded. However, once again MMI futures volume was relatively low as 12,046 contracts traded. (See Appendix 40.) Open interest declined to 4,795 contracts down 28 per cent.

Substantial opening delays again existed at the NYSE. In addition, at various times throughout the day trading came to a halt in a number of key issues. (See Appendix 41.) These underlying market breakdowns coupled with the NYSE's decision to restrict access to their DOT system effectively curtailed MMI-related program trading.

At approximately 11:20 a.m., the Exchange was informed by the president of the Chicago Mercantile Exchange that the New York Stock Exchange Board would shortly convene to consider closing the Stock Exchange. A similar call was received from the CFTC.

The CBOT's Executive Committee immediately convened.

A call was placed to the President of the NYSE who confirmed that the NYSE was meeting to consider the situation. A call was also placed to the Chairman of the CBOE who confirmed that the CBOE was about to close.

The Exchange attempted to determine the number of stocks trading in the Major Market Index. From all information available at the time, 17 of the 20 stocks in the Index were open for trading. In addition, Exchange officers were present in the MMI pit, surveying market participants and continuously informing the Executive Committee of market activity. After obtaining as much information as possible, the Executive Committee determined to keep the Major Market Index open for trading.

Other stock index futures and options markets reopened at approximately 12:05.

Treasury Bond futures and options traded 34,487 and 179,213, respectively. Futures began and ended the session locked at 80.78, up the three point limit. With CBOT Treasury Bond futures locked limit up, investors turned elsewhere. The Treasury Bond futures contract at the London International Financial Futures Exchange, which had traded slightly over 6,000 contracts on an average day in the first part of 1987, traded 47,082 contracts. (See Appendix 42, table of CBOT and LIFFE Treasury Bond futures volume.)

Agricultural and silver contracts registered their highest volumes of the period. Analysts noted that agricultural prices were generally higher due to active commercial buying.

Clearing Corporation: Between 10:00 a.m. and 11:00 a.m., the BOTCC issued another special variation call to clearing members. This call, for $625.8 million, was met in one hour. The daily 2:00 p.m. call, for $250.5 million, was also met in the required one hour. Total collections for the trading day were $1508.3 million. The BOTCC also announced that the MMI margin rate would increase from $3,000 to $5,000/contract for collections on October 21.

Office of Investigations and Audits: The Market Surveillance section reviewed clearing member firms and large trader positions from the previous day. Six large traders carried open positions in the November 1987 MMI-Maxi futures greater than 500 contracts. Of the six, only two outside customers participated and one CBOT member. Market Surveillance continued to monitor the stock market

events throughout the day and noted a significant discount of the futures to the index. Wire services indicated several stocks had not opened or opened and later halted trading. Market Surveillance noted that from 11:30 a.m. to 12 Noon the futures rebounded nearly 50 points. (See Appendices 38, 39, and 43.)

On October 20, 1987 the volatility in both the interest sensitive markets and the stock markets was still present. Again, the Investigations section began a routine investigation into the trading activity in December 1987 Treasury Bond futures and November 1987 MMI contract during opening time period. In addition, an investigation was initiated to review the trading activity in each of the subsequent brackets throughout the day in the MMI contract. (See Appendix 44.) Floor surveillance continued to be done more frequently and monitored periodically throughout the trading session.

The Audit and Financial Surveillance staff continued to expand in-field reviews as a result of pay/collect calls (13) and large trader reports (24). OIA initiated twenty-two in-field financial reviews and increased the number of firms on daily reporting from five to fifteen.

OIA continued its communication with commodity and security organizations including the BOTCC, CME, Washington and Chicago offices of the CFTC, NYSE, JAC, and the CBOE. OIA also continued to apprise the BCC and the BOTCC of status of its continuing surveillance activities.

The OIA also reviewed all CBOT seats sold on Friday, October 16 and Monday, October 19, 1987. The review was conducted to determine if the seat sales were the result of losses in the market. The review revealed none of the seat sales were directly the result of losses in the futures market.

Additionally, the CBOT Margin Committee and CBOT and MidAm Board of Directors were polled to raise (double) the minimum margin requirements on various financial futures. It should be noted that CBOT financial futures may move no more than $3,000 up or down from the previous day's close (a price limit).

The increases in margin were:

Contract	From Initial/Maintenance/Hedge	To Initial/Maintenance/Hedge
Treasury Bond	2500/2000/2000	5000/4000/4000
Treasury Notes	1500/1000/1000	3000/2000/2000
Muni-Bonds	2000/1500/1500	4000/3000/3000
GNMA-CDRs	2500/2000/2000	5000/4000/4000
GNMA II	2500/2000/2000	5000/4000/4000
MidAm T-Bonds	1250/1000/1000	2500/2000/2000

These changes went into effect at the opening of the trading day Wednesday, October 21, 1987 (which begins at 5:30 p.m. on Tuesday, October 20, 1987). (See Appendix 45.)

The Board of Trade Clearing Corporation also raised its applicable minimum margin requirements.

The entire OIA staff, over eighty people, was involved in monitoring the markets.

Wednesday, October 21, 1987

Evening Session (Tuesday evening-October 20): Treasury Bond futures rose quickly to the upper trading limit, fell back and rose back to the limit again. (See Appendix 46.) Another volume record was set when 101,141 contracts were traded. Treasury Bond volume was 44,552 contracts, a record for the evening session. Bond options traded 40,400 contracts. (See Appendix 47.) The continued flight to bonds from stocks was cited by most analysts as the basis for increased volume.

Clearing Corporation: The evening call by the BOTCC amounted to $731.0 million. Funds were collected by 7:00 a.m.

Economic Events: Although the Hong Kong Stock Exchange remained closed, the Nikkei in Tokyo rose 9.30 percent and the FT-SE in London rose 7.89 percent. The dollar was generally higher against foreign currencies. Commentators discussed the effects of the budget deficits and other macroeconomic events on the stock market decline.

Day Session: Based on strength in the U.K. and Japanese markets, the November MMI contract opened 20.5 points or 5.6 percent higher. (See Appendices 48 and 49.) Throughout most of the session, as bond prices and the U.S. dollar remained stable, the index advanced and eventually posted an all-time single day point gain of 49.50 points or about 13.6 per cent of the index. In a similar manner, the DJIA set a one day record gain of 186.8 points. Volume in the MMI declined as 8,201 contracts were traded. Open interest stood at 4,386 contracts down 8.5 per cent from the previous session. (See Appendix 50.)

Treasury Bond futures closed at the upper trading limit but traded 311,180 contracts. Bond options traded 185,974 contracts. Volatilities and trading volumes of the agricultural and metals contracts returned to more normal levels.

Clearing Corporation: The BOTCC again issued an additional variation call between 10:00 a.m. and 11:00 a.m., as well as the daily variation call at 2:00 p.m. These calls amounted to $491.9 million and $52.2 million, bringing the total daily collections for the trading day to $1,275.1 million. The BOTCC announced the following CBOT margin changes effective for collections on October 22: Treasury Bond futures margins increased from $2,000 to $4,000; Treasury note futures margins increased from $1,000 to $2,000; GNMA-CDR margins increased from $2,000 to $4,000; and Municipal Bond Index margins increased from $1,500 to $3,000.

Office of Investigations and Audits: The open of the T-Bond futures was monitored through floor surveillance. Periodic surveillance of the trading activity was also conducted during the evening trading session by the Investigations staff. T-Bond Options, the T-Notes, and the T-Note Options were also monitored during the evening trading session.

Market Surveillance reviewed clearing member firms and large trader positions from the previous day. Open interest in the November 1987 MMI futures contract declined 1,700 contracts to 3,411 on light volume of 10,562 contracts

The Financial Surveillance and Audits staff continued its increased review of member firms' financial activity. The initiation of eleven in-field financial reviews of member firms enabled OIA to insure its firms were able to meet the minimum financial requirements and their obligation to the BOTCC. Inquiries were made to member firms due to large trader calls (14) and pay/collect calls (12). Fifteen firms continued to be on daily reporting. The BCC continued to be apprised of the situation.

OIA reviewed all seats sold on Tuesday, October 20, 1987 to determine if any of the sales were the result of large trading losses or if the sale of seats was concentrated in one or two clearing firms. This review revealed no adverse impact on members or member firms financial conditions.

OIA was in contact with the BOTCC, CME, the NYSE, CBOE, KCBOT, NFA and the Chicago and Washington Offices of the CFTC.

All eighty OIA staff members were involved in monitoring the markets.

Thursday, October 22, 1987

Evening Session (Wednesday evening-October 21): Bond futures and options recorded volumes of 13,933 and 17,422 contracts, respectively. Futures opened at 83.41, slightly lower than the close of the previous session and ended the session at 83.16. Prices ranged from 83.12 to 83.47. (See Appendices 51 and 52.)

Clearing Corporation: The daily call for settlement and original margin was issued that evening and totalled $894.78 million. The funds were collected by 7:00 a.m.

Economic Events: The Tokyo stock market was up 1.91 percent but London fell 5.70 percent. Hong Kong remained closed. The role of macroeconomic events in the recent stock market decline was debated by market observers.

Day Session: The November MMI contract reacting largely to weakness in the European markets, opened 14 points lower than Wednesday's close and traded at a substantial discount to the cash index early in the session. (See Appendices 53 and 54.) Selling pressure existed in the market for most of the day. The November contract finished 20.50 points lower at 393.50. MMI futures volume declined for the fourth consecutive day to 4,873 contracts. Open interest rose slightly to 4,498 contracts. (See Appendix 55.)

Treasury bond futures opened higher at 84.21 and continued to advance to close at 86.38. Trading volume was 366,911. Bond options traded 220,795 contracts.

Clearing Corporation Collections: The 2:00 p.m. variation call of the BOTCC was for $464.6 million to bring the trading day's total collections to $1,359.4 million. Anticipating additional market volatility, the BOTCC released an announcement on October 22 that MMI margins would increase from $5,000 to $7,000 and Treasury Note margins would increase from $2,000 to $3,000 effective for collections on Monday October 26.

Office of Investigations and Audits: OIA continued, as in the previous days, its in-field surveillance of the markets. Specifically, an investigation was initiated into the wide opening range in the November 1987 MMI contract. The investigation encompassed reviewing the opening time bracket and was analyzed by the CTR Plus System.

The Audits and Financial Surveillance staff made ten pay/collect calls and thirty-nine large trader calls. In-field financial reviews commenced, including twelve firms. OIA continued to have fifteen firms on daily reporting. As had been the procedure throughout the period, oral communication continued with the BCC, BOTCC, and all commodity and security organizations.

The CBOT Margin Committee and Board of Directors were polled to raise minimum margin requirements in Treasury Notes and the Major Market Index. Treasury Note margins were raised from Initial, Maintenance and Hedge of $3000/2000/2000 to $4000/3000/3000. It should be noted that price limits for Treasury Notes are $3000. The Major Market Index margins were raised from Initial, Maintenance and Hedge of $7000/5000/5000 to $8000/7000/7000.

OIA once again reviewed CBOT seat sales. All seats sold on Wednesday, October 21, 1987 were reviewed to insure their was no adverse effect on CBOT member firms.

All eighty OIA staff members were involved in monitoring the markets.

Friday, October 23, 1987

The various sections of OIA continued their daily monitoring of the volatile markets. An investigation was initiated into the wide opening range in the November 1987 MMI contract. The investigation encompassed reviewing the opening time bracket and was analyzed by the CTR Plus System. OIA contacted sixty-three member firms including those members that had not been previously contacted during the week. OIA also made eighteen large trader calls and was present in the field for financial reviews on thirteen member firms. Fifteen firms continued to report financial data to OIA on a daily basis.

Communications continued with commodity and security organizations; specifically, the NYSE requested and was provided with a list of large traders in the MMI contract.

The Chicago Board of Trade placed its Risk Based Margin System for Options into effect for the positions of outside customers and floor traders. (See Appendix 56.) This margin system aids in defining the risks associated with option positions by taking into effect market's implied volatility.

The Margin Committee continued to review the market conditions and the minimum margin requirements throughout the next few weeks. Additional changes were made in the minimum margin requirements throughout this period as appropriate.

Summary

The period October 14 - 22, 1987 was clearly one of great volatility and uncertainty. At the Chicago Board of Trade, record trading volumes were established, maximum price limits were reached on several occasions and record collections of funds by the Board of Trade Clearing Corporation were registered. During this eight-day period, the Clearing Corporation was in continuous contact with banks, exchanges, federal authorities and clearing members. The President of the Clearing Corporation spoke regularly with Silas Kean, President of the Chicago Federal Reserve, officers of all four Chicago Clearing banks, officers of Chicago's other major clearing corporations, the Options Clearing Corporation and the clearing division of the Chicago Mercantile Exchange. In addition, the President spoke with Dave Kelly, President of the National Securities Clearing Corporation. These conversations centered on determining the financial integrity and liquidity of the market participants.

The Clearing Corporation also considers the interchange of information vital to the operation of a sound clearing system. Exchange of such information ensures that each clearinghouse combines the knowledge of the other markets with the Clearing Corporation's expertise of the particular markets and products it clears. The Clearing Corporation recognizes that no single entity can be knowledgeable or expert in every commodity and type of market. Accordingly, the Clearing Corporation realizes all this continuous exchange of information to bring together industry-wide experts and balances differing views for a more efficient operation.

In summary, during the period of October 14, through October 23, 1987, the Clearing Corporation collected seven billion dollars in variation and original margins. This collection process in coordination with the banks and other markets, demonstrate the soundness of the existing system.

All Exchange and Clearing Corporation systems in place to support the markets were tested but continued to work. The markets continued to provide risk management services at a time when they were desperately needed. Throughout the period, market integrity was assured.

III. CONCLUSIONS AND RECOMMENDATIONS

On October 19, 1987, the Dow Jones Industrial Average dropped 508 points in the day's session. This unprecedented decline has been attributed by the vast majority of experts and observers to a number of fundamental economic factors including unresolved federal deficits and trade imbalances. Those few who have suggested that "program trading," "portfolio insurance" and/or other aspects of options and futures stock index contract trading are the cause of the decline appear to be misinformed. The clear consensus is that world-wide uncertainty and fear regarding the status of the United States economy resulted in sudden, unprecedented selling activity on the New York Stock Exchange. Futures markets, far from being a cause of the market decline, performed their hedging and risk-transfer functions admirably.

Similarly, some critics have called for radical changes in futures contract margins. They claim that stock index futures margins, being less than the margin requirements for equity securities purchases, somehow contributed to stock market volatility. These few fail to appreciate the fundamental differences between futures (performance bond) margins and equity securities (credit) margins.

Initially, futures markets themselves are akin to insurance for the cash purchase markets which underlie them. They are the markets to hedge the risk of cash market purchases. If the cost of that insurance becomes prohibitively expensive by arbitrarily increasing margins (i.e., greater than the risk one wishes to insure against), the result is that domestic futures markets will not be used. Instead, cash market investors will choose to use foreign, less expensive futures markets, off-exchange, unregulated products or forego hedging altogether thereby exposing themselves to greater risk and increasing cash market costs.

Some other critics have advocated that merger of the Commodity Futures Trading Commission and the Securities Exchange Commission would, in some unexplained way, remedy stock market volatility. However, there is no rational basis for such a belief. The CFTC and SEC have cooperated closely regarding stock index futures contract trading since trading began in 1982. Nothing in the events of October, 1987 has evidenced any problem whatsoever of interagency regulatory responsibility. To the contrary, CFTC performance has been exemplary.

The basis for separate jurisdictional agencies lies in the fundamental differences between futures and equity securities markets: the securities markets are for the purchase and sale of

stocks while the futures markets provide hedge and risk transfer opportunities. Moreover, the markets trade under two entirely different systems. These differences remain intact despite recent events and continue to compel separate jurisdiction. Separate jurisdiction is desirable for another reason as well: throughout this unprecedented period of market turbulence, futures market performance was laudable, especially at the Board of Trade.

The current regulatory system, under Congressional control, is designed to assure the financial and market integrity of the futures markets. Throughout this period of unprecedented volatility, futures trading information was collected and available - to Exchange staff and the CFTC - on a daily basis through the Board of Trade's Computerized Trade Reconstruction System ("CTR"). Developed in 1986, CTR pinpoints who traded with whom, at what price, in what quantity, and at what time to the nearest minute or less. Critically, all this data is available the following business day. Throughout this period, futures audit trails were maintained, the financial condition of firms was continuously monitored and interagency communications and coordination functioned smoothly. In sum, the futures market regulatory mechanism worked exceptionally well - better, in fact, than any other regulatory market mechanism.

Additionally, the Board of Trade's markets remained open throughout the period of unprecedented volatility when other markets throughout the world either could not, or would not, open. Indeed, the Exchange continued to be open for the evening trading session as well, to provide further market access. The Board of Trade provided a market for the world investment community to discover the best price at that point in time and also provided a method for those who were involved in the market to get out of the market by transferring their risk. The Board of Trade thereby performed the market functions established by the U.S. Congress.

Chicago Board of Trade markets not only remained open, but the financial integrity of the system was stringently upheld as well. During the one-week period, over six billion dollars was collected and paid out by our clearing corporation without a single incidence of a clearing member default. Every member firm of the exchange was contacted and monitored by our Office of Investigations and Audits to ensure their financial integrity. Our markets were thoroughly examined for trade practice violations insuring that the integrity of our system was also upheld.

With respect to margins, the Board of Trade increased futures (performance bond) margins ten times during the month of October for a number of contracts, reflecting increased volatility. Thus far in 1987, the Exchange has changed futures margin requirements over

one hundred and sixty (160) times. In contrast, stock (credit) margin requirements in the securities industry have not changed for many, many years. It is doubtful that any government agency could be as responsive as quickly as the exchange is to the need to adjust futures margin requirements.

Perhaps most importantly, the Board of Trade was in continuous communication with our regulator, the Commodity Futures Trading Commission. Thus, we jointly insured the continuous compliance of our members and member firms with all regulatory provisions.

In sum, the futures markets and the futures regulator worked well. We should not make devastating changes to a market system which performed well simply because fundamental market conditions precipitated an unprecedented decline in the equity securities markets.

A. THE PERFORMANCE OF THE CHICAGO BOARD OF TRADE

The events of October, 1987, spotlighted the value of and need for futures exchanges in providing risk management services to institutions and individual investors. The unprecedented volatility in the financial markets during this period obviously reflected an environment of great risk and uncertainty. The linked influence of international markets and the critical role of a number of major economic factors such as the U.S. budget and trade deficits, currency fluctuations and inflation became increasingly evident.

These extraordinary events tested the futures market system and placed the exchanges under tremendous pressure to continue to operate in an efficient and effective manner. The performance of the Chicago Board of Trade during this period was faultless.

The Chicago Board of Trade opened each of its futures and options contracts on time every day. It called no trading halts during any trading session. The Exchange had no delayed quotes. Even though some individuals and firms at the Chicago Board of Trade suffered severe losses, no member firms went out of business as a result of the stock market decline. Importantly, all margin obligations to the Board of Trade Clearing Corporation were met. The market continued to provide risk transfer services to those who sought these services and could not find them elsewhere.

Throughout this period of volatility, the need for the Chicago Board of Trade's services was never more evident. Market participants, desperately seeking a mechanism to insulate their holdings from adverse market moves, chose the Exchange's markets in record

numbers. During the week of October 19th alone, the total dollar volume of Chicago Board of Trade futures and options contracts exceeded the trading volume records set by the New York Stock Exchange by more than a 3 to 1 ratio.

While stock index futures were thrust into the spotlight during the week of October 19, Treasury bond futures at the Chicago Board of Trade traded three to four times as much as all stock index futures at the New York and Chicago exchanges combined and had a dollar volume about twice as great as that of the New York Stock Exchange. This trading took place without crisis, under the same unprecedented economic uncertainty and under price volatility similar to that in the stock market. Treasury bond futures performed efficiently and provided price insurance to pension funds, depository institutions and others holding portfolios of government securities. The 40 primary dealers who underwrite the national debt had continuous access to the protection offered by Treasury bond futures. Treasury bond futures provided assurance to the U.S. government and those involved in the United States Treasury market that the immense government bond market would function normally. This lent a great measure of stability to the generally tumultuous world markets.

The Board of Trade Clearing Corporation, as usual, performed all clearing functions for the Chicago Board of Trade in its typical, efficient manner without difficulty. The Clearing Corporation's primary function is to act as the ultimate counter-party to all futures and options contracts, serving as buyer to every selling clearing member and seller to every buying clearing member. The Clearing Corporation has developed and maintains a state-of-the-art risk analysis system to monitor comprehensively each clearing firm's risk.

The Clearing Corporation closely adheres to a strict performance bond margin deposit system with daily margin payment collections. This system requires that clearing firms make performance bond margin payments daily based on market movements before the market opens and after the market closes. During periods of extraordinary volatility, the Clearing Corporation can call on a clearing firm to deposit additional performance bond margin at any time during a trading session. In these situations, the firm must pay the amount called for by wire transfer of funds within one hour.

This time-tested system functioned extremely well. During the 15 business days beginning October 12, 1987 and ending October 30, 1987, the Clearing Corporation cleared the largest trade volume ever recorded on the Chicago Board of Trade for a similar time period and collected approximately $11.5 billion in performance bond margins. Not only did the Clearing Corporation function in an exemplary fashion during October, 1987, it has always worked well. Since its inception in 1925, there has never been a financial loss due to default on a Chicago Board of Trade futures or options contract.

Throughout the crisis in the stock market, the Chicago Board of Trade's Office of Investigations and Audits performed its customary strict scrutiny of financial and market surveillance activities. Although the intensity of the market activity made a more detailed review necessary, the overall surveillance program proved effective in meeting the challenge.

Each day, the Office of Investigations and Audits reviewed in detail the financial exposure of member firms and large traders, monitored the sale of memberships on the Exchange, enforced customer fund segregation requirements and investigated potential trading irregularities. These activities were conducted with the help of a comprehensive computer network that compares market volatility, a firm's capital, and customer positions in futures and options. A key part of this network is the Computerized Trade Reconstruction System ("CTR"). CTR is the only exchange audit trail which is capable of determining trades to the nearest minute and having that critical information available the very next business day. No securities exchange has this capability.

During this period, the Office of Investigations and Audits contacted all clearing member firms in conjunction with its surveillance activities. Staff members were "in the field" in member firms offices immediately. Through these actions the Chicago Board of Trade assured itself that not one member firm of the Exchange had to close and that no customer funds were in jeopardy.

The Chicago Board of Trade's performance bond margin system worked without exception throughout this period of market uncertainty. Performance bond margins for futures and options are set by the Exchange's Margin Committee. This Committee meets at a moment's notice to assess the adequacy of performance bond margin levels in light of current market volatility, and changes margin levels as appropriate. Over one-hundred and sixty (160) performance bond margin changes have been made in the first ten months of 1987 at the Exchange. In October alone, ten changes were made on financial futures contracts. The market expertise of Margin Committee members and the promptness with which they can respond to quickly changing market conditions could not be duplicated by any outside academic or government panel.

During October, 1987, under the unprecedented pressure of extreme volatility, the Chicago Board of Trade and the Board of Trade Clearing Corporation continued to provide a viable marketplace for risk reduction. The system was tested severely. The system worked well. While the unusual conditions at times strained stock markets and traders around the world, the Chicago Board of Trade functioned effectively and maintained efficient markets without a breakdown of

any kind. This experience demonstrates clearly why these markets are the envy of the world and are being aggressively copied by Tokyo, London, Paris and other major world financial centers.

B. CFTC JURISDICTION

Recent reactions to the events of October, 1987, include a call to redraw the jurisdictional line between the SEC and the CFTC. There is no rational basis for such a proposal.

A proposed merger based on the stock market decline of October 19th fails to address any of the fundamental problems which led to that decline. Initially, the market decline occurred because of fundamental economic conditions, not regulatory agency failure. There is no evidence that a merger of the two agencies would decrease stock market volatility. A single regulator would not make our times more certain or reduce the budget or trade deficits. Moreover, the current regulatory structure works well. The CFTC performed capably during the crisis and no evidence of any flaw in the current regulatory structure appeared. If anything, recent events confirm the wisdom of that structure.

Initially, the SEC and the CFTC already cooperate extensively in the regulation of stock index futures. Critically, the SEC reviews and has veto power over any proposed stock index futures contract. As a condition of approving any such contract, the SEC, the CFTC and the exchanges have worked out an intermarket surveillance system. Furthermore, the CFTC must keep the SEC "fully informed" of stock index future activities and must obtain the SEC's views on the relationship between stock and stock index futures trading. In drawing the current jurisdictional line, Congress has already taken into account the respective expertise of the CFTC and SEC. Market turbulence has not made the SEC more qualified or the CFTC less qualified to oversee stock index futures. To the contrary, events prove that the current regulatory scheme works very well.

Second, the basis for CFTC jurisdiction over stock index futures lies in the functional difference between futures and securities markets. Those differences have not changed. Securities markets provide a means for transferring stock ownership and thereby facilitate capital formation. Futures markets transfer price risk. The regulatory goals of securities and futures regulation differ accordingly. Securities regulation promotes the formation of capital. Futures regulation promotes the transfer of price risk by parties who are in the business of producing, owning or distributing the underlying product. These distinct goals would be compromised by a single regulator.

Congress has repeatedly addressed this issue and consistently endorsed separate regulation of futures and securities markets. The House report on the CFTC's 1978 reauthorization states:

> The Committee is of the view that jurisdiction over futures markets should reside in an agency such as the Commission whose regulatory role requires an economic expertise which focuses upon the risk-shifting and price-determining function that futures trading performs. Futures markets have not remained static and futures regulations have covered an increasing number of commodities as the benefits of futures trading has become more widely understood. The Committee does not believe that the public interest would be served by duplicating in one or more additional agencies regulatory authority over futures markets that presently exists in the Commodity Futures Trading Commission. (H.R. Rep. No. 95-1181, 95th Cong. 2d. Sess. 1978 p. 13.)

The logical alternative to the existing system of functional regulation is a host of narrow interest-based regulators, each overseeing a different piece of the economic pie: USDA for agricultural products; the Department of Energy for oil and gasoline futures; the Bureau of Mines for metals futures; the Fed and Treasury for government securities futures, etc. Such a system would foster unnecessary duplicative regulation and would increase the regulatory costs for market participants. These increased costs restrict entry into the futures business and eliminate competition. Brokerage, clearing and advisory services would become highly centralized among large firms. Because there would be less competition, futures markets would be less efficient.

Finally, in today's global markets, competition exists between regulators and between markets as well as between market participants. The competitive and complementary interaction of the futures and securities markets and their regulators promotes economic and regulatory efficiency. Any unnecessary regulatory change which raises the costs of the successful exchange risk shifting markets will drive cost-conscious hedgers to unregulated off-exchange alternatives and to highly competitive foreign markets seeking greater inroads into this predominantly United States industry. The data regarding the movement of U.S. Treasury Bond futures trading to London on October 20, 1987 when the Board of Trade's Treasury Bond contract was locked at price limits is but one graphic example of this undeniable fact. (See Appendix 42.)

C. MARGINS

Performance bond margins in the futures industry serve a very different purpose than credit margins in the equity securities industry, reflecting fundamental differences between the two markets. Unfortunately, use of the term "margin" in both industries has caused some people to confuse these two very distinct concepts and to recommend applying stock credit margin requirements, such as 50% margin levels, to futures trading activity, based upon the misconception that such measures would minimize volatility in the financial markets.

To the contrary, such measures would serve only to undermine the futures markets' valuable risk-shifting function by raising the costs of futures trading to prohibitively high levels without reducing price volatility in financial markets. In fact, the price volatility of financial markets would increase if the risk-shifting function of futures markets was encumbered by the imposition of prohibitively high margins. Furthermore, the increased cost of domestic futures markets would force users to seek risk shifting services at lower cost, less regulated futures markets abroad.

Stock markets are investment markets that provide forums for buying and selling stocks. In contrast, futures markets are risk-transfer markets that permit the shifting of price risk through futures contracts. The functional difference between these markets is akin to that between the purchase of a home and the purchase of home insurance. When purchasing a home, a buyer will typically acquire home insurance to protect against a decline in the home value due to physical loss. Insurance transfers the risk of home ownership to the insuring company. Similarly, futures markets provide a vehicle to transfer the price risk associated with the ownership of securities and other commodities to other individuals. Futures contracts offset declines in the value of a securities purchase due to falling prices in the market for such securities.

A credit margin on a stock purchase is a down-payment, or a percentage of the actual purchase price, made by the purchaser to the party who loaned him the remaining funds to purchase the stock. The lender requires this down-payment to offset any losses that might occur if the purchaser defaults on the loan and the stock is sold as collateral. Upon the down-payment of the credit margin, full ownership rights in the purchased stocks are transferred to the purchaser.

Margins are required for futures as a performance bond. They do not represent an extension of credit. Margins must be deposited by both buyers and sellers when entering the futures markets. Most importantly, futures positions are settled on a daily basis by distributing losses or gains due to price changes. The payments flow through the clearinghouse immediately, thereby insuring liquidity in the system. If funds deposited as performance bond margin have been reduced as a result of adverse price moves, additional performance bond margin payments are required. Deficits are not allowed to accrue; debts must be paid off daily. Thus, futures performance bond margins ensure that cash is available daily to settle each day's market obligations in full. (For a more detailed description of the margining process at the Board of Trade, see Section I, supra.)

Futures performance bond margin payments do not involve any extension of credit, nor do they result in any transfer of ownership of the underlying commodity. Returning again to the analogy of residential housing purchases, when a buyer and seller enter into a contract for closing at a future date, earnest money is posted; however, when the home is purchased a down-payment is made. As with earnest money, futures performance bond margins provide assurance that contractual commitments will be met. As with a house down-payment, the stock credit margins convey ownership interest.

Thus, to simply look at an initial futures margin level of 8-10%, which merely permits a position to be established, and compare that to a 50% margin in securities markets, which permits actual ownership of stock, ignores the daily settlement of futures contracts and is totally misleading.

To keep performance risk low, futures markets have developed efficient systems for the rapid collection of margins. The foundation of these systems is a third party clearing organization, the "clearinghouse", which assures the financial integrity of each trade. The clearinghouse requires that all futures trades be submitted for clearing through its member clearing firms. Parties to a futures contract are responsible for making performance bond margin payments to clearing members. These clearing members are in turn responsible for making performance bond margin payments to the clearinghouse based on their customers' positions. Membership in the clearinghouse is limited to firms that meet stringent financial requirements. The financial survival of the clearing members as well as their legal obligation to the clearinghouse creates strong incentives to assure the prompt collection of margin payments by the clearing firm.

The daily settlement process of futures demands speed and flexibility in the setting of performance bond margins so that the overall goal of minimizing risk, including default risk, can be met. For this reason, performance bond margins are set by the

exchanges through committees which are able to assess and respond quickly to changing market conditions. These committees, comprised of members with considerable experience and expertise, can meet at a moment's notice to examine the adequacy of performance bond margin levels in light of current market volatility and can change such levels to reflect daily price changes. For example, over one hundred and sixty (160) performance bond margin changes were made in the first 10 months of 1987 at the Chicago Board of Trade.

In contrast to futures, stock transactions are not designed to minimize risk; therefore, rapid margin collection has not been the central concern. Consequently, stock trades are settled over a five day period and margin payments are not due for seven days. Stock credit margin levels, which have been set by Federal regulatory authorities, are seldom adjusted and show little response to changing market conditions. For example, initial stock credit margin levels have not changed since 1974.

There is no empirical support for the argument that increased futures margins will reduce stock market volatility. Insight into the effect of credit margins on price volatility is offered in a recent study by the Federal Reserve Board. With regard to stock prices, its study noted:

> The behavior of stock prices since the enactment of margin regulation also does not support the argument that controlled margin trading will tend to reduce stock price volatility. Despite the relatively high federal margin levels and the very low levels of margin credit since the early 1930s, and the significant changes in the nature of the call loan market, stock prices have continued to be about as volatile as they were in the 50 years preceding margin regulation. Also, evidence on the behavior of stock prices around the time of margin changes suggests that such actions may have had little impact on stock prices, a finding that also casts some doubt on the importance of margin ratios for stock prices.[1]

There is no reason to suggest that the same conclusions would not hold for futures prices.

If implemented, a proposal to raise futures margins could irreparably harm the futures markets and significantly raise risk in financial markets. Margin costs represent a key variable that

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[1] Board of Governors of the Federal Reserve System, A Review and Evaluation of Federal Margin Regulations, December 1984, page 167.

must be considered in using a futures contract on an exchange. An increase in margin requirements increases the cost of futures trading. Potential market users will be discouraged from using the futures markets by such a cost increase, thereby reducing market liquidity and the benefits of the futures markets to the economy. The economy will be riskier and potentially less stable as firms and individuals leave major risks unhedged. To illustrate, a mandated premium for home insurance at 30% to 50% of a home's purchase price would eliminate the use of home insurance and make home ownership far more risky.

Furthermore, if implemented, the costs imposed by these futures margin proposals would drive market participants to off-exchange and foreign markets that have few or no regulations (including margin requirements) and that compete with domestic exchanges offering risk management services in a regulated environment. An unmargined, unregulated off-exchange trade in risk-shifting instruments generates far greater risk both to individual firms and to the entire financial marketplace.

For example, today the Board of Trade's Treasury bond futures contract is the largest traded futures contract in the world. This contract is the envy of the financial futures industry. However, the identical contract is traded in London, Sydney, Singapore and soon in Tokyo. The governments of Japan and Great Britain have proudly dedicated themselves to making their markets the center of world futures trading. With these government mandates backing these foreign markets, any regulatory change which increases the trading costs or impairs the market efficiency of the Treasury Bond contract will immediately cause investors to simply push a different telephone button on their trading desk and take their business overseas. The data contained herein (see Appendix 42) which shows an eight-fold increase in London Treasury Bond futures volume when the Board of Trade bond contract was locked up-limit on October 20, 1987, is but one small - yet graphic - illustration of this undeniable fact.

Equally harmful and without merit are proposals to vest control over stock index futures margins in a federal agency, such as the Federal Reserve Board. The exchanges, and not a federal agency, are in the best position to adjust margins quickly and efficiently in response to changing market volatilities. Federal regulators cannot have the same direct and immediate access to market information as exchange members who actively trade the markets, nor can they draw on the members' and exchanges' unique market expertise when analyzing such information to determine whether margin adjustments are necessary. The exchanges' strong economic incentive to set appropriate margins, specifically, the incentive to minimize the probability of market disruption due to default,

would be greatly reduced or lost. The exchanges have flexible systems in place that enable them to react immediately when the risks of participating in the market are suddenly increased. It is unlikely that a federal regulatory body would be able to respond as promptly. What is likely is that a regulatory body would establish unnecessarily high margins to compensate for its inability to respond quickly to changing market conditions and take insufficient account of costs imposed on users of the market.

In sum, futures margins are currently meeting their objective of ensuring market integrity. Proposals to mandate futures margin increases will not reduce price volatility but will only increase trading costs. Increased trading costs reduce the utility of futures markets for risk management, thus reducing their benefit to the economy as a whole while spurring the growth of unregulated off-exchange risk management substitutes outside the surveillance of exchanges or government regulators. Furthermore, foreign markets in London and Tokyo which compete with United States futures markets and which have copied United States futures markets are more than eager to take away our domestic futures business if it becomes the least bit non-competitive for any reason.

D. PRICE LIMITS

Daily price fluctuation limits prohibit trading in a futures or futures options contract at prices higher or lower than a specified amount from the previous day's closing price. Futures contracts are termed "limit up" when they reach their maximum high limit price of the day and "limit down" when they reach their low limit of the day. At the Chicago Board of Trade, limits are expanded by 150% if the market trades at limit up for two successive days or limit down for two successive days.

Advocates of price limits argue that limits provide the clearing organization and member firms time to collect margin payments from those traders on the losing side of the market. In addition, these limits serve to cool off active markets when prices might otherwise "overreact" due to extreme investor uncertainty and fear.

A potential adverse consequence of limits is that market participants incurring trading losses may be unable to liquidate their positions. As trading approaches the maximum daily price limit, trading activity ceases until the next day when new limits go into effect. From a purely economic standpoint, many argue that limits are counterproductive since if the futures contract hits its limit, it is not properly reflecting the actual price of the commodity in the cash or physical market. Additionally, if

price limits are imposed on a futures contract, the legitimate hedger may be out of balance with his hedge. If cash market movements exceed movements in the futures markets because of price limits on the futures, the hedger's risk is exposed to the cash market.

These issues and others have been debated extensively by Board of Trade Directors on many occasions. Most recently, at its regularly scheduled November meeting, the Board of Directors voted to amend the MMI contract terms and conditions to provide for daily price limits. Those limits will go into effect upon CFTC approval.

E. SPECIALIST SYSTEM

Specialists on the New York Stock Exchange function as brokers and dealers. When acting as a broker, the specialist attempts to match buy and sell orders for his assigned stocks. The specialist also holds public orders at prices which are not at the current market price and cannot be executed immediately.

In his capacity as a dealer, the specialist buys and sells shares of stock for his own account. The specialist has the responsibility of trading against the public order flow when necessary to maintain a fair and orderly market in his specialty stocks.

The NYSE's specialist system has been criticized in a number of studies and investigations over the past fifty years.[2] The role of the specialist has become even more controversial since the early 1970's, when all of the specialists acquired a monopolistic position in their assigned stocks.

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2 See, e.g, Stoll, Hans R., "The Stock Exchange Specialist System: An Economic Analysis," Salomon Brothers Center for the Study of Financial Institutions, Monographs of Finance and Economics 1985 -2, P.9.; "Case Study on Regulation of Specialists on the New York and American Stock Exchanges," Hearings on Self-Regulation in the Securities Industry Before the Subcomm. on Securities of the Senate Comm. on Banking, Housing and Urban Affairs, 92d Cong., 2d Sess., Pt. 4, at 1-216 (1972); Wolfson and Russo "The Stock Exchange Specialist: An Economic and Legal Analysis," 1970 Duke L.J. 707; SEC Report of Special Study of Securities Markets of the Securities and Exchange Commission" H.R. Doc. No. 95, 88th Cong., 10th Sess., Pt. 2, at 57-171 (1963); Twentieth Century Fund, Inc., The Security Markets, 685 (1935).

The NYSE has had varying interpretations of the extent to which the specialist is obligated to maintain a fair and orderly market, especially during significant market declines. On such occasions, NYSE officials have excused the performance of the specialist system, citing exceptional circumstances. For example, the New York Stock Exchange defended the specialists on May 29, 1962, when their net purchases were only 6.7% of their total transactions and the market fell sharply.

The obligations of the specialists were similarly excused on October 19, 20, and 21, 1987. Whether or not the specialists failed to maintain a fair and orderly market on these days, the facts are that they often stopped trading altogether. The data demonstrates that the percentage of Dow Jones Industrial stocks which were not trading at various times during those days was significant.

PERCENTAGE OF DOW JONES INDUSTRIAL STOCKS NOT TRADING
ON THE NEW YORK STOCK EXCHANGE
BY HOUR OF DAY
(New York Time)

Time	10/19/87	10/20/87	10/21/87
9:30 a.m.	87%	76%	83%
10:00 a.m.	43%	17%	20%
10:30 a.m.	37%	17%	3%
11:00 a.m.	3%	3%	3%
11:30 a.m.	0%	30%	0%
12:00 p.m.	0%	33%	3%
12:30 p.m.	0%	20%	0%
1:00 p.m.	0%	7%	3%
1:30 p.m.	0%	3%	0%
2:00 p.m.	0%	0%	0%
2:30 p.m.	0%	0%	0%
3:00 p.m.	0%	0%	0%
3:30 p.m.	0%	0%	0%
4:00 p.m.	0%	0%	0%

Source: Chicago Mercantile Exchange and F. E. Fitch, Inc. (New York Stock Exchange)

These high percentages should not be surprising. As the October 31, 1987 edition of The Economist observes "One under-capitalised market-maker in a stock is more likely to withdraw and avoid making a price than several competing market-makers - or a crowd of jostling traders in a pit."

Because each specialist has a monopoly position, there may be a very substantial number of shares that have to be funneled through this specialist in a short period of time. A trading system with a number of competing market makers is better equipped to handle heavy volume conditions because there is more than one individual able to act as a dealer in order to fill public customer orders.

The specialist also has the ability to halt trading in his stock(s) when there are large order imbalances and/or price discrepancies. These halts are not pre-announced; indeed, when a halt occurs, the public rarely has notice of the halt. During the halt, the specialist gathers buy/sell information and support for his stock; while doing so, he may give out indications of the price level at which he expects to reopen trading in the stock. Again, public access to and knowledge of these price indications is severely limited. As a result, during turbulent markets such as are the focus of the present inquiry, the public investor and even many professional investors are greatly disadvantaged.

Several major market participants have recently observed that the specialist system is not equipped to accommodate the large volume of institutional, portfolio trading which typifies today's equity securities market.

> "We believe the principal responsibility [for the October 19, 1987, 508 point DJIA decline] rests with the NYSE for lacking the system capacity and depth of capital to respond to the legitimate needs of its customers." Frederick Grauer, President, Wells Fargo Investment Advisors ("the world's largest institutional equity manager with over $62 billion in assets") as quoted in Investor's Daily, November 19, 1987, "Big Institutions Defend Programs, Place Blame on NYSE Systems."

Testimony such as this, echoed by Lou Margolis (Managing Director, Salomon Brothers, Inc.) before Commissioner Robert Davis' CFTC Financial Products Advisory Committee on November 18, 1987, should lead those examining the markets of October, 1987, to question whether today's marketplace has overtaken the capacity of a monopolistic specialist trading system.

F. MARKET INFORMATION

The Consolidated Tape (Tape) is the price reporting system for all NYSE issues. Originally developed in 1867, it has been improved and updated on numerous occasions over the years. A major advancement in the Tape's development involved the 1975 establishment of the National Market System and the ensuing mandate that a consolidated system be developed which reports price and volume for securities in

all domestic markets trading such securities. Specifically, the Tape prints all transactions in NYSE listed stocks which are made on the NYSE, on any one of the regional exchanges, on the NASDAQ system, or on the Instinet system.

The Tape normally provides a valuable service in providing market participants with data on current transactions and information on the fairest possible prices. However, in the past month, the limitations of the system have become obvious. Although the Tape is capable of handling 900 transactions a minute, it was running several hours late at different times on October 19 and 20. In other words, investors were not provided with up-to-date information on where the current market was for various NYSE stocks.

By comparison, the Chicago Board of Trade provided continuous up-to-date price information throughout this volatile period. The Exchange has developed a highly sophisticated computer network called the Market Price Reporting and Information System ("MPRIS"). The system operates on a "real-time" basis, accepting transactions as they are entered by price reporters in the trading pit. Upon receiving transactions, the MPRIS edits the trades to ensure that they adhere to trading regulations (such as minimum allowable price fluctuations and price limits). After instantaneous validation, the system displays the information on the trading floor's electronic wallboards and transmits it over the Board of Trades's price reporting network. The MPRIS operates on a continuous basis constantly transmitting current price quotes throughout each trading session. In addition, the system involves multiple computers which provide instant cutover capabilities to keep the price dissemination process running normally in emergencies.

The differences between these price reporting systems was a crucial factor during the week of October 19th. Some observers claimed that the sizable discounts and premiums that existed at various times in MMI futures during this period was evidence of pricing problems in the futures market. In reality, however, given the relative inefficiencies of the NYSE reporting systems and the periodic trading halts that occurred in a large number of stocks, this was not the case. Information regarding investors' opinions about the stock market was able to be incorporated much more quickly in the futures markets than the underlying market.

G. CHICAGO BOARD OF TRADE'S RISK BASED CAPITAL RULE PROPOSAL

There has been much discussion concerning the events of October regarding the subject of capital. The Board of Trade has proposed to the CFTC that the minimum capital requirement for futures commission

merchants should be based upon a percentage of the risk associated with open customers' positions. The proposed capital rule calculates the amount of potential exposure to an FCM from its customers and is intended to provide sufficient protection against defaults. The amount of the potential exposure is measured by the daily market movement of the positions held for customers.

The Board of Trade proposal consists of the following key elements:

A) Minimum Capital Requirement - is equal to the greater of: i) 4% of funds required to be segregated, or ii) 6% of customer net potential risk.

B) Net Potential Risk - is defined as the greater of: i) Exchange minimum maintenance margin requirements, or ii) standard volatility factor (3 month moving average of price volatility).

C) Options - The proposal addresses the risk of options by using a modified delta system to analyze an entire accounts' portfolio of positions.

D) Early Warning Requirement - consists of 6% of the risk of customer accounts, plus 4% of the excess customer segregated funds above risk.

E) Early Warning Alert - The proposal will require firms to notify the Exchange where the net potential risk, of a customer or non-customer account, represents 30% of a firm's Adjusted Net Capital if funds to cover the risk are not received in approximately 48 hours.

F) Undermargin Charges - Customer accounts that have margin calls outstanding 3 days were subject to a capital charge. The time allowed has been reduced to 2 days before a capital charge is assessed.

G) Debit/Deficits - The proposal expands the definition of non-current debits and deficits to include accounts that did not satisfy their previous day's debit or deficit balance.

H) Guarantee Accounts - The proposal allows accounts to be guaranteed by the execution of a standardized guarantee agreement and funds deposited in an escrow account.

The Board of Trade firmly believes that any adjustment to market participants' capital situation must be premised on risk of positions carried, not simply aggregate firm capital. To focus solely on total capital will eliminate small and medium-sized firms, create an industry oligopoly of large firms and raise insurmountable entry barriers to new firms. The result would be both anticompetitive and a dimunition of market service efficiency.

SUMMARY RECOMMENDATIONS

1. JURISDICTION

Jurisdiction over stock index futures should remain with the Commodity Futures Trading Commission. There are sound economic and regulatory reasons for maintaining separate jurisdiction between futures and equity securities markets. Chief among these are the fundamental different purposes in the markets themselves (i.e., purchase/sale versus risk transfer), the diametrically opposed trading systems utilized in each market (i.e., a monopoly specialist system versus open outcry auction system) and the adverse economic consequences of duplicative and overlapping jurisdiction.

2. MARGINS

Futures margin authority should remain under the control of futures exchanges. Futures (performance bond) margins perform a vastly different function than equity security (credit) margins. Futures initial margin payments serve as a security deposit to performance of the contract. Critically, they are adjusted to the value of the marketplace on a daily basis with payments and collections made to and by the futures exchange clearinghouse at least once a day, if not more often. In contrast, securities margins are a loan on the purchase of the equity security payment which is not due until seven days following the purchase.

3. PRICE LIMITS

The Chicago Board of Trade believes that appropriate maximum daily price fluctuation limits should be established for all stock index futures contracts. While the Exchange believes that, in the best of all free market conditions, price limits represent an artificial constraint upon accurate price discovery and free market movement, our experience with price limits in other markets demonstrates it is a constraint which need not necessarily adversely impact the efficient functioning of the futures marketplace. Thus, the Board of Directors at its regular November 17, 1987 meeting, voted to impose daily price limits on the MMI stock index futures contract.

Although these limits were not in place on October 19, had they been in place maximum daily movement in futures markets would have been limited. Critically, the limitation, established by rule rather than specialist discretion, would have occurred at a point in the

market well known to all participants. The trading halt resulting from a limit move also would have reduced the need for financing by reducing total margin payments and providing more time to obtain additional financing, facilitated payment and collection of margins, and served as a psychological "damper" on a market driven by fear and uncertainty.

If the goal of the nation's market regulators is to limit price movement in the securities markets, the most rational solution is to impose price limits on individual stock purchases and sales as well as options, index options and index futures trading.

4. CLEARING

The Board of Trade Clearing Corporation shares its daily pay/collect information with the Chicago Mercantile Exchange. By the end of the year, daily pay/collect information among all futures exchanges will be shared. This access to immediate information enables all futures exchanges to immediately assess the capital position of its clearing members. Thus, consolidation of clearing entities would not increase market information to the risk managers; it would, however, dangerously consolidate that risk in one place without the benefit of multiple risk analysis from several clearinghouses.

Additionally, the payment of all gains on open positions by the Board of Trade Clearing Corporation to its members on a daily basis provides much needed liquidity to the market in times of high volume and volatility.

5. SPECIALIST SYSTEM

The specialist system should seriously be examined with a view toward improving the competition of that system. Major securities should not be restricted to a single specialist; multiple specialists and/or market makers should be permitted to compete in order to provide a more competitive price to public investors in a timely fashion.

By opening competition for specialists, market efficiency will be increased by the natural forces of free competition. In addition, the amount of capital provided to maintain market stability should increase.

6. TRADING HALTS

As a fundamental premise, the Board of Trade believes that markets should always remain open. In fact, the strategic plan of the Chicago Board of Trade is to expand its hours throughout the trading day to serve the needs of investors in all major world time zones because foreign futures exchanges backed by national mandates (such as Tokyo and London) are positioning themselves to make inroads into our U.S. futures markets.

While advocates maintain that trading halts could dampen a market driven by temporary fear and uncertainty, it is critical that such trading halts be instituted in a uniform manner under pre-set conditions, well known in advance to all market participants. To vest discretion to halt trading in any one market participant who has a financial interest in the market without adequate notice to all market participants is contrary to the best interest of the free and open marketplace.

Therefore, the practice of halting , delaying and/or not opening securities under the New York Stock Exchange specialist system should be examined with a goal of improving the free flow of market information and equal opportunity for all market participants to trade.

7. QUOTATIONS AND INDICATIONS

The public is not informed of order imbalances or trading halts at the New York Stock Exchange. As a result, price information as to the value of securities as well as the major market indicators such as the Dow Jones Industrial Average can be severely misstated, especially in turbulent markets. Since the public is unable to obtain the true value of its security or the market as a whole, they react to incomplete and misleading market information. Any trading halt should be immediately communicated to all market participants.

8. CAPITAL

The futures industry should reassess its current capital requirements with a view towards a more equal measure of assessing risk of positions held in the marketplace. Capital requirements should be premised upon the risk of positions carried, not merely aggregate capital.