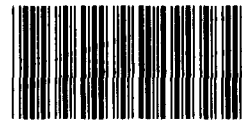
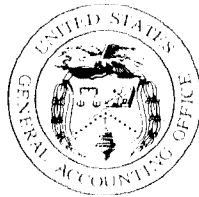


April 1990

CLEARANCE AND SETTLEMENT REFORM

The Stock, Options, and Futures Markets Are Still at Risk



141098

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United States
General Accounting Office
Washington, D.C. 20548

General Government Division

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April 11, 1990

The Honorable John D. Dingell
Chairman, Committee on Energy
and Commerce
House of Representatives

The Honorable E (Kika) de la Garza
Chairman, Committee on Agriculture
House of Representatives

The Honorable Henry B. Gonzalez
Chairman, Committee on Banking, Finance,
and Urban Affairs
House of Representatives

The Honorable Patrick J. Leahy
Chairman, Committee on Agriculture, Nutrition,
and Forestry
United States Senate

The Honorable Donald W. Riegle, Jr.
Chairman, Committee on Banking, Housing,
and Urban Affairs
United States Senate

This report evaluates the sufficiency of industry and federal regulator actions in response to clearance and settlement recommendations made by the President's Working Group on Financial Markets after the October 1987 stock market crash. It is a follow-up to the work we did immediately following the crash.

This report was prepared under the direction of Craig Simmons, Director, Financial Institutions and Markets Issues, who may be reached on 275-8678 if you or your staff have any questions. Other contributors are listed in appendix VIII.

Richard L. Fogel
Assistant Comptroller General

Executive Summary

Purpose

After the stock market crash of October 1987, the President created the Working Group on Financial Markets (Working Group) to identify issues, make recommendations, and seek resolution of the complex problems raised by the crash. The Working Group is chaired by the Secretary of the Treasury and its members are the Chairmen of the Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC), and the Federal Reserve System (FRS). Among the areas they examined were the clearance and settlement systems for stock, options, and futures markets.

The clearance process ensures that both buyers and sellers agree on trade quantity and price. The settlement process is used to transfer payments and stock among buyers and sellers for hundreds of thousands of daily trades that are worth billions of dollars. The Group of Thirty, an international private sector group, also made recommendations to improve securities clearance and settlement systems. As a follow-up to its initial observations on the October 1987 stock market crash, GAO evaluated the merits of, and assessed the progress made in implementing, the two groups' recommendations for clearance and settlement reforms in three areas:

- the processing of information about trades,
- procedures used by clearing organizations to manage financial risks, and
- payments to and from clearing organizations.

Background

Specialized organizations handle clearance and settlement processes for the different markets. These functions are done primarily by the National Securities Clearing Corporation (NSCC) for the stock market; the Options Clearing Corporation (OCC) for the stock options market; and nine clearing organizations for futures markets, depending upon the exchanges at which the futures contracts are traded. Clearing members of these organizations include stock, options, and futures firms.

Clearing organizations not only administer trade matching and payment, but they guarantee both sides of a trade once the details are reconciled. Such guarantees boost the integrity of the markets but represent a financial risk to the clearing organization, which must be carefully managed.

The Working Group reported in May 1988 that unprecedented trading volumes and price declines during the market crash caused the following:

- Clearing organizations and exchanges experienced trade processing problems. The stock market had problems with data entry and promptly resolving trades, and the Options Clearing Corporation could not quickly obtain prices.
- Some clearing organizations were unable to routinely determine their clearing members' financial risk and exposure in other markets.
- Some clearing members did not have the funding necessary to meet their obligations, and many had to increase their borrowing from banks.
- Some banks, clearing organizations, and their members did not make necessary payments to each other within normal time frames.

The Group of Thirty recommended changes that would match trades by the day after the trade and settle stock trades within 3 business days after a trade is completed.

Results in Brief

Some of the weaknesses in clearance and settlement systems revealed by the 1987 stock market crash still exist, making clearance and settlement systems vulnerable to instability in the event of another large and sudden market adjustment. Much progress is being made in increasing exchange and clearing organization capabilities of handling large volumes of trades and processing trade information. However, more needs to be done to improve procedures used to manage financial risk and to ensure that payments are made within time frames established by stock, options, and futures markets.

Many of the needed changes involve coordination and cooperation among competing exchanges and across stock, options, and futures markets. The Working Group needs to take the lead role to identify responsibilities, assign tasks, and set a timetable for accomplishing the remaining recommended changes on information sharing and ensuring prompt payment.

Principal Findings

Certain clearance and settlement problems that occurred during the October 1987 crash have been solved, but others remain uncorrected. The greatest progress has been made in upgrading trade processing systems. Some systems are now capable of handling larger volumes of trades and clearing them more quickly than was possible in October 1987. These capabilities should facilitate efforts of the Working Group and the Group of Thirty to shorten the stock settlement cycle. (See pp. 23-28.)

Less progress has been made in the areas of managing the financial risk to clearing organizations. While improvements have been made in capital and liquidity requirements, clearing organizations continue to have difficulty monitoring the financial position of firms trading in more than one market, because clearing organizations operate only in single markets while 20 percent of their member firms trade in more than one market. To obtain an expanded view of a firm's exposure, clearing organizations would need to share information among their counterparts in other markets, but progress in this area has been slow. (See pp. 29-39.)

Some progress has been made to reduce cash flows and ensure prompt payment. CFTC and the Chicago Mercantile Exchange (CME) have worked to revise payment agreements with banks and make routine intraday payments to and from the clearing organization. Although some programs have been developed to lessen cash flows between stock, options, and futures markets, studies of cash flow netting and simplifying intermarket clearing have not been completed. The adequacy of available clearing member credit to support payments in times of high volume and major price swings is unclear. (See pp. 40-51.)

Most actions that require intermarket cooperation, such as a shared information system to evaluate intermarket risk, have not been completed. No joint effort to study methods of reducing cash demands between markets or integrating clearing has been made.

Recommendations

GAO endorses the Working Group and Group of Thirty recommendations to resolve clearance and settlement problems. GAO recommends that the Secretary of the Treasury, as Chairman of the Working Group, ensure that recommendations to reduce clearance and settlement system risks and improve cash flows are completed. The Secretary, working with other members of the Working Group as well as the exchanges and their clearing organizations, should identify responsibilities, assign tasks, and set time frames for accomplishing clearance and settlement recommendations that have not been implemented. These efforts should ensure that:

- a routine, intermarket, information sharing system is developed and used to assess the intermarket risks posed by joint members (See p. 38); and

- studies exploring ways to lessen intermarket cash flow pressures and to simplify intermarket clearing without diminishing safeguards against financial risk are completed and acted on appropriately. (See p. 50.)

Market-specific recommendations are included at the end of chapters 3 and 4.

Agency Comments

The Department of the Treasury, SEC, CFTC, NSCC, OCC, and CME provided written comments on a draft of this report. The Department of the Treasury said that the Working Group, chaired by the Secretary of the Treasury, ranks progress on clearance and settlement issues among its highest priorities and will do its part to advance the GAO recommendations.

SEC and CFTC supported the general recommendations contained in the report. CFTC supports the recommendation that it assess the adequacy of clearing organization's use of letters of credit in guarantee funds.

NSCC, OCC, and CME neither endorsed nor disagreed with GAO's recommendations. Each of these three organizations took exception with certain data and phrases in the draft report. Specific comments are addressed at the end of report chapters and in appendixes III through VII.

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Abbreviations

ABA	American Bar Association
AMEX	American Stock Exchange
ACT	Automated Confirmation Transaction
BOTCC	Board of Trade Clearing Corporation
COMEX	Commodity Exchange Incorporated
CFTC	Commodity Futures Trading Commission
CBOE	Chicago Board Options Exchange
CBT	Chicago Board of Trade
CME	Chicago Mercantile Exchange
FRS	Federal Reserve System
ICC	Intermarket Clearing Corporation
NASD	National Association of Securities Dealers
NSCC	National Securities Clearing Corporation
NYSE	New York Stock Exchange
OCC	Options Clearing Corporation
SCG	Securities Clearing Group
SEC	Securities and Exchange Commission
SRO	Self-Regulatory Organization
TARS	Trade Acceptance and Reconciliation Service

Introduction

This study follows up a report issued in January 1988 on the October 1987 market crash.¹ That report described the linked nature of stock, options, and futures markets and the actions taken by industry and federal regulators during the crash to stabilize markets. This report is a status report on clearance and settlement actions that have been taken in response to federal recommendations.²

Clearance and Settlement Take Place After a Trade Is Made

On an average day, hundreds of millions of individual shares and contracts are traded in U.S. stock, options,³ and futures markets. These transactions result from hundreds of thousands of trades that are worth billions of dollars. Clearance and settlement take place after a trade is made. Clearance is the process of capturing the trade data, comparing the buyer's and seller's version of the data, and guaranteeing that the trade will settle once the data match. Settlement is the final stage of the process when funds and/or financial instruments are exchanged between the parties through the clearing organization. Those who owe money and/or financial instruments make payments or deliveries. Those who are owed money and/or securities receive the funds or securities.

Various Organizations Are Involved in the Clearance and Settlement Process

Exchanges, clearing organizations,⁴ clearing members, and banks are participants in clearance and settlement systems. Data concerning the specific features of a trade, such as the identity of the buyer and seller and the price, in some cases, are captured at the exchange and sent to a clearing organization. For other trades, the buyer and seller submit trade information to the clearing organization for comparison. The information should be identical. Trades that do not initially match are reconciled by the buyers and sellers to allow the trade to be cleared and settled.

Once a trade is matched, the clearing organization becomes responsible for completing the clearance and settlement process. To manage this risk, clearing organizations operate risk-management systems, which include margin requirements, minimum capital standards for members,

¹Financial Markets: Preliminary Observations On The October 1987 Crash (GAO/GGD-88-38, Jan. 26, 1988.)

²See app. I for a list of federal recommendations and their status.

³The term "option" is used in this report to mean stock options, not options on a futures contract.

⁴We use the generic term "clearing organization" here to cover what are called "clearing agencies" in the stock market, and "clearing corporations" in the options market. 17 CFR § 1.3(d) (1989) calls them "clearing organizations" in futures markets.

and financial surveillance. Clearing organization memberships are comprised of securities broker-dealers, options market makers, or futures commission merchants. Clearing members often take responsibility for clearing the trades of smaller market participants. Banks are involved in the clearance and settlement process in that they extend credit to clearing members and serve as settlement banks for clearing members by making payments for members in the options and futures markets.

All stocks are cleared through three clearing organizations. The National Securities Clearing Corporation (NSCC) clears 95 percent of stock transactions. Two regional stock exchanges, the Midwest Stock Exchange and the Philadelphia Stock Exchange, each have their own clearing organizations. Settlement takes place at one of three different depositories. (See fig. 1) In addition to the primary linkages, the three stock clearing organizations also maintain interfaces with each of the other trading marketplaces so that, for example, a trade made on the New York Stock Exchange can be settled at the Midwest Clearing Corporation.

The Options Clearing Corporation (OCC) clears all options contracts on the six options exchanges. Each exchange provides OCC trade data for options trades executed on its exchange. Those exercising their options do so through one of the three stock clearing organizations and their associated depositories. (See fig. 2.)

Futures clearance and settlement involves 9 futures clearing organizations serving 14 exchanges. Most futures clearing organizations are affiliated with a single futures exchange. Despite the relatively large number of futures clearing organizations, almost 80 percent of futures trading volume is cleared by the two largest futures clearinghouses—the Board of Trade Clearing Corporation (BOTCC) and the Chicago Mercantile Exchange Clearing House Division (CME). Over 90 percent of the volume is handled by the four largest futures clearing organizations—BOTCC, CME, Commodity Exchange Inc. (COMEX) Clearing Association, and the New York Mercantile Exchange Clearing House. (See fig. 3.)

Figure 1: The Primary Linkages in Stock Clearance and Settlement

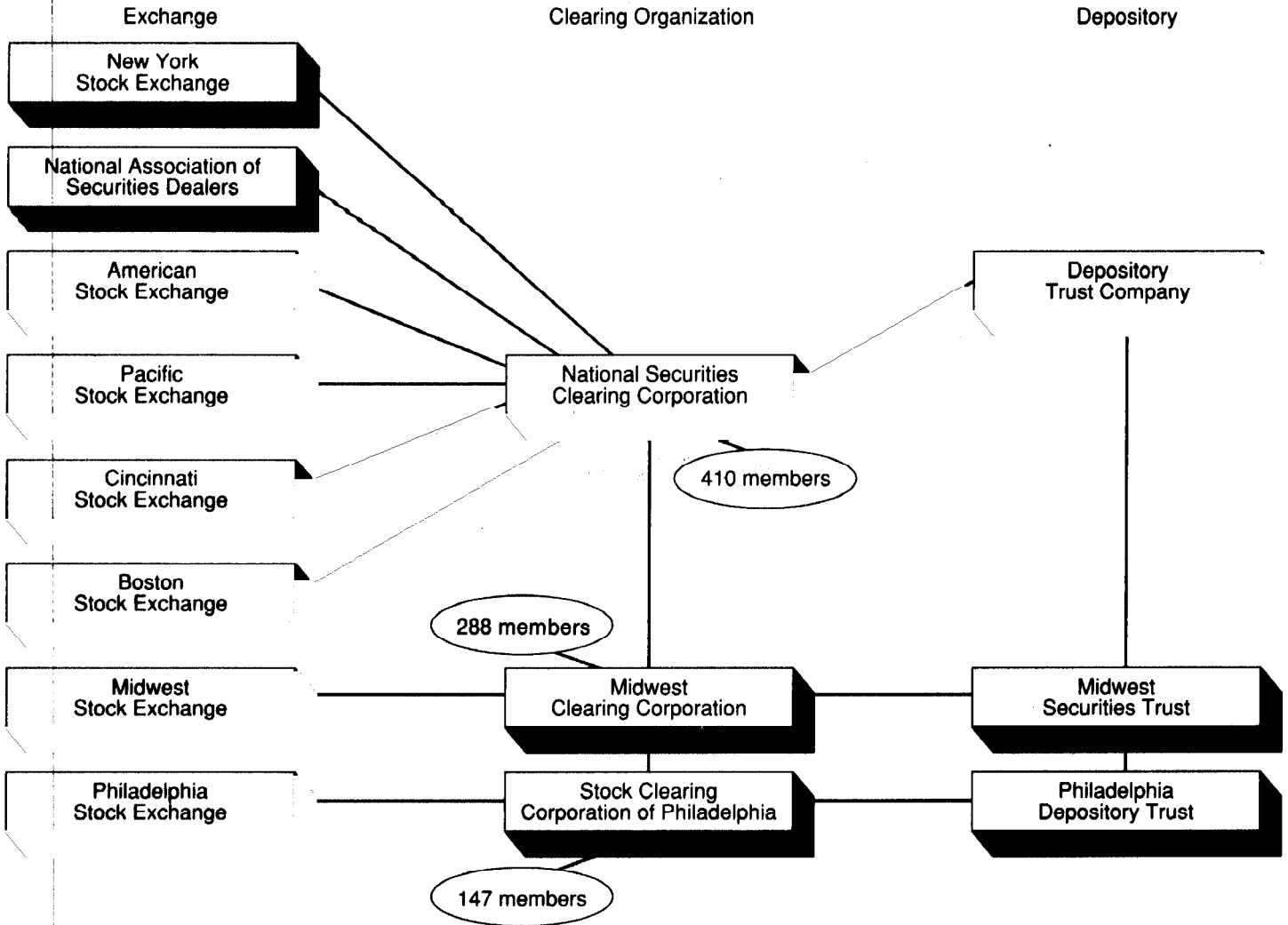


Figure 2: The Structure of Options Clearance and Settlement

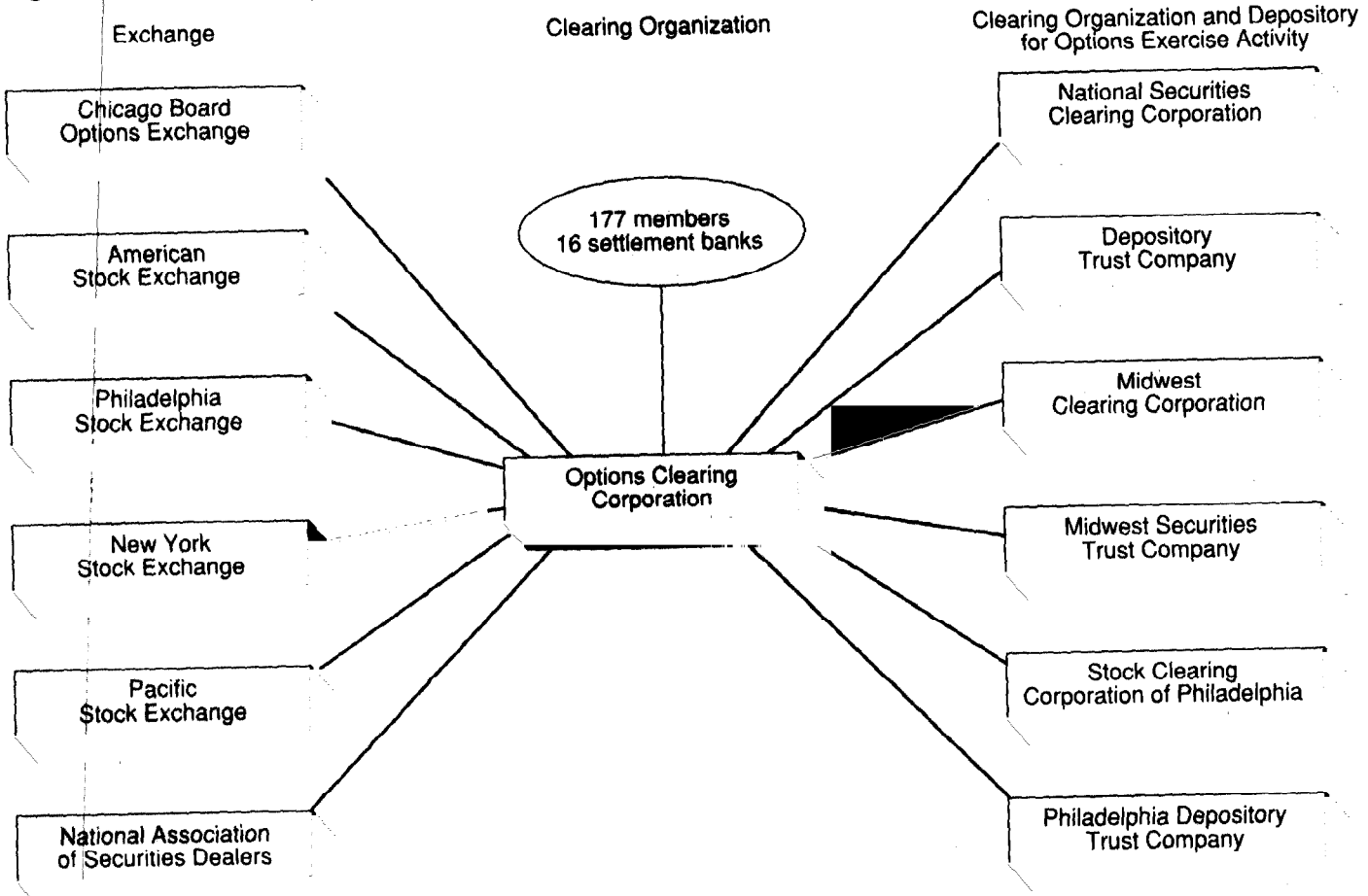
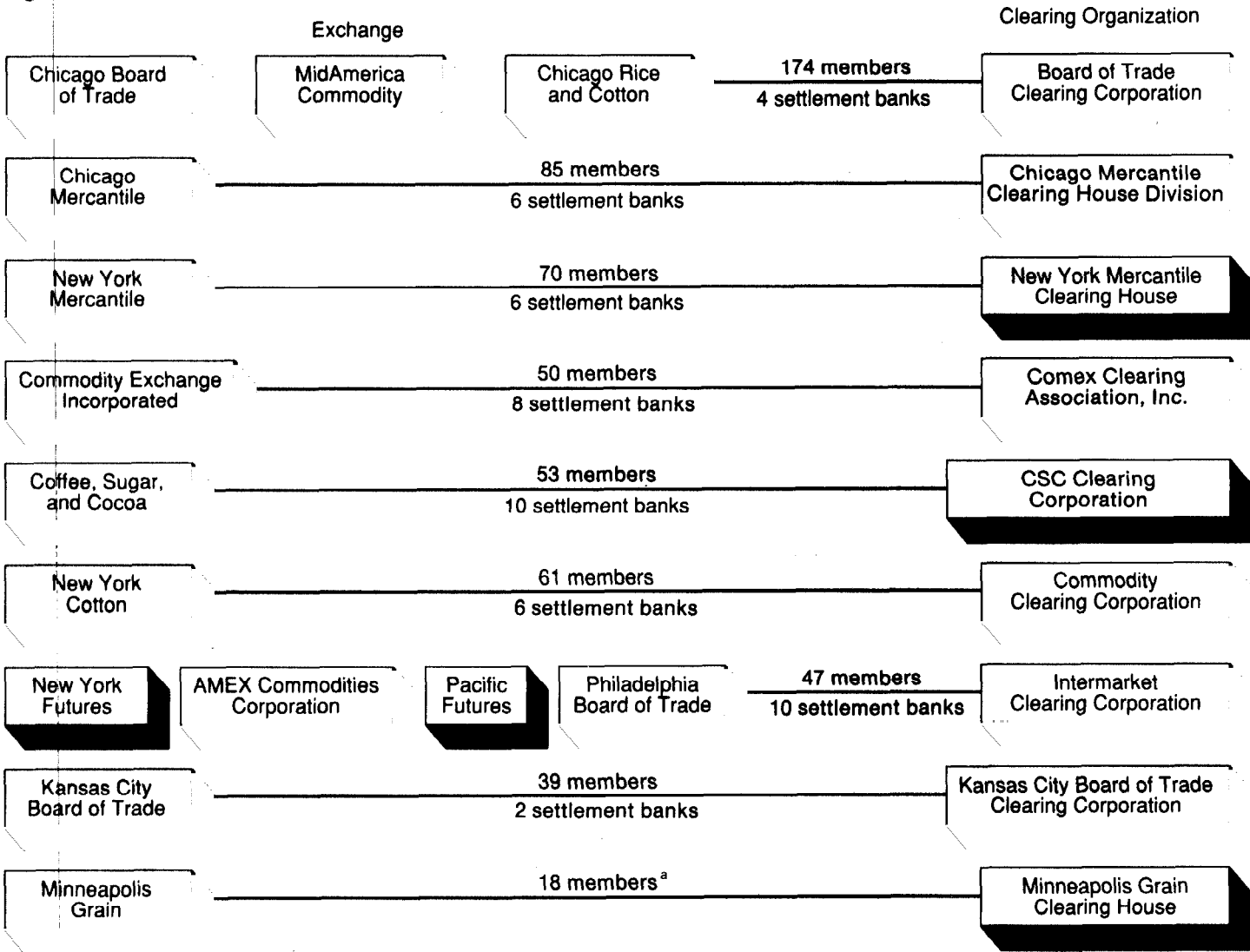


Figure 3: The Structure of Futures Clearance and Settlement



^a The Minneapolis Grain Clearing House does not use a clearing bank. Clearing members settle their accounts by corporate checks.

Clearing Organizations Extend Trade Guarantees

Clearing organizations guarantee the settlement of matched trades. They guarantee that clearing members who are owed money or stocks will receive them and that clearing members who owe money or stocks will make payment and delivery. The guarantee is advantageous because once it becomes effective, market participants who buy and sell

financial instruments do not have to concern themselves with the solvency of counterparties with whom they have traded. The clearing organization and, indirectly through assessment, the clearing members who make up the organization, accept the responsibility of making good on any clearing member who fails to meet its obligations.

The Importance of Routine Clearance and Settlement

Properly operating clearance and settlement systems are important to the efficiency and integrity of financial markets. Their failure to continue to operate in volatile markets can further exacerbate market instability. The inability of a major clearing member to meet major obligations could jeopardize the financial health of all the clearing organizations to which it belongs, because the trade guarantee makes the clearing organization responsible for fulfilling the financial obligations of its failed clearing members.

The failure of a clearing organization could have severe consequences for financial markets as a whole. For example, if a clearing organization fails, healthy clearing members may not get paid promptly for stocks they delivered or receive stocks for money they paid. To the extent that solvent clearing members are unable to meet other payment obligations without payments from clearing organizations, these clearing members may also fail. Thus, a widespread inability of clearing organizations and their members to meet their obligations could result in a rippling effect on parties and markets not directly involved with the failed member.

Federal Regulation of Clearance and Settlement Systems

Because of the potential impact that a poorly operating system could have, clearance and settlement regulation is the responsibility of the Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC), and the Federal Reserve System (FRS). The SEC regulates stock and options clearance and settlement. The CFTC regulates futures clearance and settlement. The FRS oversees the payment and credit roles of banks in the clearance and settlement process.

In the stock, options, and futures markets, the structure of regulation is such that self-regulatory organizations (SRO)—the clearing organizations and the exchanges—are the primary regulators and the federal regulators oversee the actions of the SROs to determine whether or not they are functioning in accordance with regulations and the law. Stock, options, and futures clearing organizations and exchanges establish rules governing activities in the markets that are subject to approval by their respective regulators.

The SEC Regulates Stock and Stock Options Clearance and Settlement

The SEC oversees stock and stock options clearance and settlement through registration requirements, rule reviews, periodic evaluations of clearing organization operations called "inspections," and special studies. Registration requirements specify financial, administrative, and operational guidelines for clearing organizations. Through rule reviews, the SEC examines proposed clearing agency rules for their consistency with the Securities and Exchange Act and regulations issued by the SEC. SEC inspections focus on rule compliance at clearing organizations. Its inspections of depositories are done in conjunction with the FRS and state banking authorities. SEC oversight also occurs through special studies such as those done after the crash.

CFTC Regulates Futures Clearance and Settlement

CFTC oversees clearance and settlement in the futures markets through contract designation, rule reviews, and regular assessments of the financial operations of exchanges, including clearance and settlement elements called "audit and financial rule enforcement reviews," and special studies. The first time an exchange applies to trade a futures contract, called "contract market designation," CFTC examines and analyzes the clearance and settlement facilities and the applicable clearing rules. In rule reviews, CFTC examines proposed exchange and clearing organization rules for consistency with CFTC regulations and the Commodity Exchange Act. Through periodic audit and financial rule enforcement reviews, CFTC examines systems established by clearing organizations and exchanges to identify, monitor, and manage financial risk to the exchanges, clearing organizations, and their members. CFTC oversight also occurs through special studies, such as those done after the Volume Investors Default and the October 1987 market crash which identified problems and suggested solutions.

The Federal Reserve Regulates the Payment and Credit Role

The FRS also plays a role in the clearance and settlement process through its regulation of banks, FedWire operations, and setting of monetary policy. As a regulator of banks, the FRS oversees the credit and payment role of banks in the clearance and settlement process, primarily by issuing regulations concerning credit and payment procedures that banks must follow. The FRS operates the FedWire funds transfer system. FedWire is a communications and settlement system that links FRS banks with insured depository institutions and transfers money and certain types of government securities. The FRS also influences credit through monetary policy. Depository institutions are regularly examined to determine, among other things, the soundness of their assets and solvency. In its role as the lender of last resort to banks, the FRS seeks to (1)

ensure a sound banking system, (2) forestall liquidity crises and financial panics, and (3) ensure the health of the financial system.

Clearance and Settlement Practices Are Different in the Three Markets

Although clearing organizations in the three markets perform the same basic set of functions—trade comparison, risk management, and settlement—the details of how these functions are performed can vary depending on whether the trade takes place in the stock, options, or futures markets. For example, stock trades settle in 5 business days after a trade occurs, while options and futures trades settle the day after the trade. Also, options and futures are interests without certificates while those who own stocks can request certificates of ownership. Depositories can hold these certificates and provide a simple means of transferring ownership by book entry. The role of banks is also different in the three markets because in the stock market payment is made by check, while in the options and futures markets payment is generally made by banks who make wire transfers between clearing member and clearing organization accounts. Options clearance and settlement is different from futures clearance and settlement in that payment and clearing guarantee time frames are different.

Clearance and Settlement Systems Are Linked

Market participants who use trading strategies involving all three markets help connect or link markets that developed independently and are regulated separately. The clearance and settlement systems developed in each market reflect the divergent histories and needs of each market. The differences between clearance and settlement systems in the three markets can sometimes hinder intermarket trading. Trading strategies may develop settlement problems when gains in one market are needed to cover losses in another market.⁵ For example, market participants cannot use the proceeds from their stock market activity to cover daily losses in the futures market since payments are due in the futures markets the next business day while funds available from stock settlement take 5 business days. In such a situation, market participants sometimes borrow funds against the stock value to cover losses. If capital to support intermarket strategies is limited, the margining arrangements, the time it takes to settle, and other differences between markets can hinder an intermarket strategy, especially in volatile markets.

⁵Typical intermarket strategies are: (1) using options or futures positions to hedge the risk of stock purchases or sales or (2) trying to profit from price differences between a basket of stocks and a stock index options or futures contract by buying one and selling the other.

Clearing members who belong to clearing organizations in more than one market and actively employ intermarket investment strategies also link clearance and settlement systems. A number of the joint clearing members are very large firms, such as Prudential-Bache Securities, Inc.; Shearson Lehman Hutton Inc.; and PaineWebber Incorporated.; who represent a substantial number of investors and have substantial market power.

Our analysis of firms listed as being clearing organization members in August 1989, indicates that 190 out of approximately 963 clearing members in the three markets, or 20 percent, were members of clearing organizations in two or more markets. Of that number, 32 clearing members belong to clearing organizations in all three markets, 126 clearing members belong to both stock and options clearing organizations, 20 clearing members belong to both options and futures clearing organizations, and 12 clearing members belong to both stock and futures clearing organizations. Table 1 does not show the number of clearing firms, affiliations, and/or parent-subsidiary relationships among clearing firms. As a result, the number of intermarket clearing firms may be understated.

Table 1: Intermarket Membership in Clearing Organizations (August 1989)

Markets	Number of members	Percent of All members ^a
Futures, options, & stock	32	3%
Options & stock	126	13%
Futures & options	20	2%
Futures & stock	12	1%
Total clearing members belonging to clearing organizations in more than one market	190	20%
Only futures	273	28%
Only options	13	1%
Only stocks	487	51%
Total Clearing Members	963	100%

^aPercentages do not add up to the total due to rounding.

Source: Securities Clearing Group and Board of Trade Clearing Corporation.

The Presidential Working Group Identified Problems

In March 1988, the President created the Working Group on Financial Markets (Working Group) to identify issues, make recommendations, and seek resolution of the complex problems raised by the market crash of October 1987. The Working Group is chaired by the Secretary of the Treasury and its members are the Chairmen of the SEC, CFTC, and FRS. We

categorized the clearance and settlement problems the Working Group and its individual members identified into three areas:⁶

- the processing of information about trades,
- risk-management procedures used by clearing organizations, and
- payments to and from clearing organizations.

Processing of information about trades and payment was a problem in the stock and options markets. Because of the unusually high trade volume and volatility during the market crash, the trade processing systems of clearing members, exchanges, and clearing organizations experienced problems. Trade data entry systems of member firms and exchange reconciliation systems were not always able to process trade data quickly and accurately. For example, the percentage of stock trades that did not match on price or quantity doubled during the crash. In the options market, OCC had problems obtaining and verifying price information needed to value and set options margins.⁷

During the market crash, the risk-management systems of some clearing organizations were inadequate. Some clearing members in the options market had inadequate capital to meet their financial obligations. In all three markets, the Working Group was concerned that guarantee funds were insufficient in size and not liquid. Clearing organizations also were not always able to determine the risk-exposure of their clearing members in other markets.

Some payments to and from clearing organizations were made after the usual time in the options and futures markets. Some clearing members did not have sufficient capital or credit to cover losses and did not promptly meet their obligations to clearing organizations. The CME and OCC—two major clearing organizations in the options and futures markets—met their legal obligation to pay in same-day funds but were late in paying clearing members. Banks were unable to immediately make credit decisions due to the large payments and associated risks.

⁶Working Group on Financial Markets, *Interim Report to the President of the United States*, May 1988. Other discussions of clearance and settlement problems appear in Commodity Futures Trading Commission, Division of Trading and Markets, *Follow-Up Report on Financial Oversight of Stock Index Futures Markets During October 1987*, January 6, 1988; Presidential Task Force on Market Mechanisms, *Report to the President of the United States*, [Brady Report], January 1988; and U.S. Securities and Exchange Commission, Division of Market Regulation, *The October 1987 Market Break*, February 1988.

⁷Margin is the amount of money or collateral deposited by a customer to insure against loss on an options contract.

The Group of Thirty Recommended Clearance and Settlement Changes

The Group of Thirty, a private sector group concerned with the working of the international financial system, reported in March 1989 on clearance and settlement systems in world securities markets.⁸ The Group observed that the operational characteristics of clearance and settlement systems in each country were uneven in quality. According to the Group of Thirty, this uneven quality could inhibit international investment flows and, under adverse circumstances, present a serious risk to the world's financial network. The Group concluded that agreement among national marketplaces on clearance and settlement standards and practices was desirable. The Group of Thirty made various recommendations designed to achieve the objectives of matching trades on the first business day after the trade date and settling stock trades by 3 business days after a trade is completed.

Objectives, Scope, and Methodology

Our objectives were to (1) describe the clearance and settlement difficulties experienced during the stock market crash of 1987 and (2) report on efforts undertaken by the financial institutions and federal regulators to reform clearance and settlement processes.

Because this report deals with problems raised during the October 1987 stock market crash, it is limited to clearance and settlement for stocks, stock options, and stock index futures instruments.⁹ Clearance and settlement of these instruments is the responsibility of the NSCC, the OCC, and the CME Clearing House Division. Since the BOTCC was only indirectly involved in the events of the October 1987 market crash, it will be discussed only in relation to information sharing among clearing organizations.

On the basis of our knowledge of clearance and settlement, we identified clearance and settlement problems that we judged to be the greatest threat to the stock, options, and futures markets. We assessed the merits of, and progress made in implementing, the related recommendations made by the Working Group and the Group of Thirty. This report describes progress made in eliminating the most critical clearance and settlement problems that emerged during the October 1987 market crash. Major problems are discussed in the text. Our assessment of progress on the implementation of all federal recommendations for clearance

⁸Group of Thirty, Clearance and Settlement Systems In the World's Securities Markets, March 1989.

⁹Stock index futures instruments are agreements to buy or sell the market value of stocks included in a particular stock market index.

and settlement reform, including those that we feel are less important, is contained in appendix I.

Our audit and evaluation work was done from May 1988 through September 1989. To examine clearance and settlement in these three markets, we reviewed federal, clearing organization, and exchange documents, including reports and regulations. We also interviewed officials from clearing organizations, exchanges, banks, and federal agencies; broker-dealers; options market makers; and futures commission merchants concerning progress made on implementation of Working Group recommendations. The work was done in Washington, D.C., New York City, Chicago, San Francisco, Kansas City, Minneapolis, and Philadelphia using generally accepted government auditing standards. GAO requested and received formal comments from the Department of the Treasury, SEC, CFTC, NSCC, OCC, and CME. FRS did not make formal comments on the draft report.

Comments and Our Evaluation

NSCC, OCC, and CME provided comments relevant to the content of this chapter.

Both NSCC and OCC questioned the regulatory authority and practices of CFTC over futures clearing organizations. NSCC said that futures clearing organizations are regulated indirectly through CFTC oversight over futures exchanges. OCC said that the Commodity Exchange Act does not empower the CFTC to regulate futures clearing organizations.

CFTC claims authority over futures clearing organizations. In Commodity Exchange Act Regulation 1.41, which implements the CFTC's responsibility to review contract market rules, the CFTC defines a contract market to "includ(e) a clearing organization that clears trades for a contract market." (See 17 CFR § 1.41(a)(3) (1989).)

At least one court has upheld the validity of CFTC's definition of contract market as inclusive of clearing organizations.¹⁰ The court observed that in designating a contract market under the Commodity Exchange Act, the CFTC has a broad statutory mandate to protect the public interest by assuring the financial integrity of the contract. The court found that the CFTC could reasonably conclude that transactions in a contract that was not secured by a clearing system would be contrary to the public interest

¹⁰Board of Trade Clearing Corporation v. United States, [1977-1980 Transfer Binder] Comm. Fut. L. Rep. (CCH) ¶ 20,534 (D.D.C. Jan. 11, 1978), *aff'd*, No. 78-1263 (D.C. Cir. 1979).

and ineligible for designation as a contract market. As a result, the court ruled that the CFTC's assertion of authority over clearing organizations falls within the range of authority delegated to it by Congress.

CFTC, in practice, does oversee futures clearing organizations. It reviews clearing organization rule submissions. It also does audit and financial rule enforcement reviews, including examination of clearing organization risk-management programs.

CME questioned the report's lack of discussion of the events of October 13, 1989. Although we agree that the October 13, 1989, decline did test, to a limited extent, the changes made in clearance and settlement systems, the size of the decline did not approach that of October 19, 1987.

CME questioned our methodology and said the report has no qualitative standards for comparing clearance and settlement across industry segments and has not adequately quantified the problem or evidence.

This report was never intended to compare the clearance and settlement systems in the different markets except to note major differences between clearance in settlement systems in stock, options, and futures markets. Our conclusions are based upon judgments about federal agency and clearing organization progress in response to Working Group recommendations. Such progress is not quantitative beyond indicating that a particular Working Group recommendation has been completed, that there has been some progress in implementing the recommendation, or that no progress has been made. Appendix I summarizes the federal agency and clearing organization actions in response to Working Group recommendations and our judgments as to the progress achieved.

Trade Processing Systems Are Being Improved

Since the crash, clearing organizations that experienced trade processing delays identified the causes of their problems and have solved, or are in the process of solving, those problems. The stock exchanges, NASD, and NSCC are implementing systems to speed up the reconciliation process for unmatched trades and to accelerate trade comparison time frames. The OCC has replaced its primary price information dissemination vendor and enhanced its own price collection system.

Efficient Trade Processing Systems Are Crucial to Financial Markets

On an average business day, market participants buy and sell millions of individual stocks, options, and futures instruments on the Nation's stock, options, and futures markets. The parties do not immediately exchange cash for the instruments. Instead, they record the terms of the trade and transfer the funds later. Payment for futures and options transactions must be made the next business day after the trade. Payments for stock transactions normally occur 5 business days after the trade date.

After the execution of a trade in one of the markets, either the exchange or the participants in a trade, submit the details of the trade directly to the clearing organization or indirectly through a clearing member for processing. Clearing organizations, or their affiliated exchanges, match key elements of each trade to ensure that buyers and sellers each have accurate data and agree to the terms of their trades. Typical elements of a trade that are matched include the identities of the buyer and seller, the number of shares or contracts, the price, and other information about the trade. Without efficient trade matching systems, market participants might experience delays in finalizing their trades. Delays can expose market participants to unnecessary financial risks because of the uncertainty surrounding their trades. Clearing members who clear for other market participants often guarantee that a customer trade will be filled at the price at which the trade was originally supposed to be executed. The clearing member is obligated to resolve unmatched trade discrepancies.

Clearing organizations are responsible for transferring funds and financial instruments among participants. These organizations have procedures to ensure that buyers and sellers meet their financial obligations. Clearing organizations also act as central processor, since all trades at exchanges must be reported to the organization for clearance and settlement. Payments and transfer of financial instruments should be made on time because delays can cause concern about the financial soundness of market participants.

Clearing organizations and exchanges operate a variety of automated and manual accounting and data processing systems. Although the specific clearance and settlement processes that organizations use vary, our review of clearing organization rules and procedures showed that each clearing organization or its exchange must be able to

- set trade reporting requirements so that trade data are uniform and easily processed within established time frames;
- establish trade matching systems capable of accurately matching trades within specified time frames;
- develop and maintain systems that quickly reconcile inaccurate trade data;
- conduct financial surveillance of clearing members in order to monitor their financial condition and therefore protect the financial stability of the clearing organization;
- establish payment and collection procedures so that clearing members are able to meet their financial obligations within established time frames;
- establish accounting systems that keep accurate track of market participant obligations, payments, and receipts; and
- develop and maintain lines of communication among market participants so that settlement payment and collection information moves quickly.

Efficient trade processing is necessary to (1) calculate payments and collections, (2) ensure the timely and orderly flow of settlement funds, and (3) maintain market integrity. During the crash, clearance and settlement systems in stock and options markets experienced various operational problems. Because of the extraordinary trading volume and market volatility, trade processing systems became backlogged and were not able to process trade data on time.

The Brady Report said that uncertainty among some market participants resulted from these problems and that some market participants questioned the integrity of the markets. CFTC officials told us that although there were some reports of uncertainty, market participants in general did not lose confidence in the clearance and settlement systems of the three markets.

Clearing organizations and exchanges recognize the important role that their systems play in the markets, and they have improved or are in the process of improving their trade processing systems.

The Stock Markets Experienced Problems in Their Trade Processing Systems

Clearing members and stock exchanges had trade processing problems during the crash but are in the process of improving their systems. Because of the high number of transactions, some firms reportedly had problems entering all their data in a timely fashion. Also, according to the February 1988 SEC report, the normal rates of unmatched trades for the NYSE, AMEX, and over-the-counter markets (OTC) are 1.6 percent, 2.4 percent, and 5.7 percent, respectively. However, on October 19, during the market crash, the NYSE rates more than doubled to 3.4 percent, and AMEX and OTC rates more than doubled to 5.5 percent and 12.8 percent, respectively. The trade processing problems exposed market participants to a heightened degree of financial risk since they could not be assured that their trades were final at the price at which they were originally executed.

According to the February 1988 SEC report, the securities trade processing industry could not process the large volume of trades within established time frames. During the crash clearing member trade entry systems were unable to quickly report the greater volume of trades, resulting in a much greater number of unmatched trades.

Also, stock exchanges relied on a paper- and labor-intensive set of procedures to reconcile unmatched trades, a complicated and time-consuming process. The stock exchanges and stock clearing members were able to reconcile most of these unmatched trades. However, they had to modify their working hours to complete reconciliation. NYSE members resolved over 140,000 unmatched trades during the week of October 19, 1987. It became apparent to federal regulators and SROs during this period that the trade entry and trade reconciliation systems for resolving unmatched trades needed improvement. Since the market crash, the stock exchanges and NSCC have taken steps to improve their trade matching and reconciliation processes primarily by eliminating the paper- and labor-intensive procedures and shortening the reconciliation time frame.

Stock Trade Processing Systems Are Being Improved

The exchanges, NASD, and NSCC are working to develop next-day trade comparison systems that should become operational during 1990. They are working towards next-day trade comparison through their efforts to (1) automate or otherwise improve trade reconciliation systems and (2) accelerate trade comparison time frames. When completed these efforts would satisfy the Group of Thirty recommendation that equities move to overnight comparison. These efforts will not satisfy the Working Group recommendation of same-day comparison.

Automated trade reconciliation systems are currently operational at the NYSE and NASD; however, although AMEX has developed an automated trade comparison system, AMEX still relies on manual trade reconciliation systems. The time frames for trade comparison have been accelerated to provide next-day trade comparison for those trades that match on original comparison.

Each of the trading marketplaces—NYSE, AMEX, and NASD—have made different levels of progress in improving their trade comparison systems. In addition, NSCC has redesigned its recomparison system. The NYSE has developed the overnight comparison system. This comparison system was developed to automate trade reconciliation in NYSE-listed equity securities. At the time of the October 1987 market crash, trade reconciliation in NYSE-listed securities was performed manually. The system lists unmatched trade data on terminal screens at the beginning of the day after the trade. During this day and the following day, members use this system to reconcile these unmatched trades. At the end of each day, the system transmits all compared trade data to the NSCC for further processing. This system began phased operation in April 1989 and is now fully operational. The exchange plans to compress the reconciliation process to 1 day but has not yet set a date for the change over.

NSCC has redesigned its comparison system. This system is operational and provides for next-day trade comparison for trades in NYSE-listed stock. Members are required to submit their trade comparison data to the NSCC 11 hours earlier than previously required. In turn, the NSCC reports on the results of the comparison of this trade data 25 hours earlier than before. When NSCC made formal comments on a draft of this report, in an attachment to its letter, it provided a more detailed description of the status of changes to its trade processing system. NSCC's comments and attachment are contained in appendix V of this report.

AMEX has developed an automated comparison system that is similar to the NYSE's system. The first phase is completed and will help automate the trade reconciliation process. Similarly, AMEX efforts to accelerate the time frames to provide for next-day trade comparison are in the developmental phase and they are supposed to be coordinated with NYSE efforts. It is unclear when AMEX's next day trade comparison process will be fully operational.

The NASD systems for unmatched trade reconciliation are already highly automated. The NASD had an automated system called the Trade Acceptance and Reconciliation Service (TARS) at the time of the October 1987

market crash. TARS allowed members to view unmatched trade data on terminals and to enter corrections at once. During the market crash, it helped members to quickly reduce a large number of unmatched trades. At the time of the market crash, participation in TARS was voluntary; after the crash the NASD made participation in TARS mandatory.

The NASD has developed a new trading system called the Automated Confirmation Transaction (ACT) system which, among other things, performs trade comparison near the time of the trade and transmit "locked-in" trade data to the NSCC. The market making member has 90 seconds to forward the details of a particular trade to the NASD's ACT system. The other member involved in that trade has 6 and 1/2 minutes to view the trade on his or her terminal and accept or decline the trade as reported. The ACT system performs on-line trade comparison and later transmits the locked-in trade data to the NSCC. The SEC recently granted approval to the NASD to begin the phased implementation of the ACT system.

Options Information Processing Systems Are Being Improved

During the week of the crash, OCC experienced settlement processing problems after it obtained inaccurate option price information from its vendors. The OCC contracts with securities information dissemination vendors to provide it with daily stock option price information. Daily price information is essential to OCC's operation because OCC uses the data to calculate margins and to determine the value of securities held as margin. Without accurate option pricing data, OCC cannot accurately assess and manage its financial risk. On the evenings of October 19, 20, and 21, OCC had to manually correct over 5,000 option reports it received from its vendors because the option prices reported by its vendors were inaccurate. Despite these problems, OCC distributed reports within established time frames.

According to the SEC market crash report, during the crash, OCC vendor automated price reporting systems dropped the first digit from three-digit option prices so that options prices reported to OCC that had a three-digit price were inaccurate. For example, if a particular stock option sold for \$152 per share, OCC's vendors reported the sale price at \$52 per share rather than \$152 per share. The OCC, therefore, had to manually correct each three-digit option price to determine the correct price. To resolve the problem, OCC replaced the primary price information vendor that it had at the time of the crash with a new vendor. In addition, OCC enhanced its own option price calculation system so that it would not be totally dependent on vendors for option price information.

Conclusions

Progress has been made by exchanges and clearing organizations in resolving the problems with trade processing systems and procedures. These problems were intramarket in nature and, therefore, were easier to resolve. The solutions only required the efforts of federal regulators and SROs in individual markets. Because of these improvements, trade processing systems appear less vulnerable to processing delays today than they were during the October 1987 market crash even though the Working Group recommendation on same-day comparison has not been achieved in the stock market. These efforts should facilitate attempts to shorten the stock settlement cycle as recommended by the Group of Thirty.

Comments and Our Evaluation

SEC challenged the tone of our statements concerning uncertainty of market participants and our statements about market participants questioning the integrity of the markets. SEC said that while some market participants may have had some uncertainty as to the timing of clearing organization trade processing, the integrity of the markets was never questioned in the securities and options area.

We have altered the report to acknowledge that there is a disagreement between the Brady Report and SEC and CFTC perceptions concerning whether or not market participants were uncertain about the performance of clearance and settlement systems and, as a result, questioned market integrity. The Brady Report says that "while no default occurred, the possibility that a clearing house or major investment banking firm might default, or that the banking system would deny required liquidity to the market participants, resulted in certain market makers curtailing their activities and increased investor uncertainty." (p. v) The SEC and CFTC reports do not develop an uncertainty theme or mention market participants questioning market integrity.

Progress Made in Changing Clearing Organization Risk-Management Systems Has Been Slow

Clearing organizations use a variety of risk-management tools to ensure that clearing members meet their financial obligations and that the clearing organization is protected in the event of a clearing member default. Although most of these worked during the crash, some risk-management tools proved inadequate and caused the following to occur:

- clearing member net capital was sometimes insufficient to cover obligations,
- clearing organization guarantee funds may not have been adequate to protect the clearing organizations in the case of a major default by one or more clearing members, and
- clearing organizations were unable to quickly and routinely determine the financial exposure that their clearing members had in other markets.

Since the crash, progress has been made to increase capital requirements for clearing members and improve the liquidity of some guarantee funds. However, an intermarket financial information system that includes participation by stock, options, and futures clearing organizations does not exist. An information sharing system that includes all markets would help clearing organizations (1) anticipate problems their clearing members might have in making payments and (2) further protect their members.

Capital Requirements Help Ensure Clearing Member Liquidity

Although margin requirements provide the basic level of liquidity protection for clearing members, capital requirements and guarantee funds also provide assurance against the risk of failure of a clearing member. Clearing organizations establish minimum net capital requirements for clearing members. The minimum capital requirements are designed to ensure that clearing members are able to withstand losses, thereby providing a layer of protection to the clearing organization. Clearing organizations' capital requirements should assure that all clearing members have enough readily available assets to meet their obligations in a timely manner do so without falling below the minimum capital requirement. The CFTC and SEC also set capital requirements for broker-dealers, options market makers, and futures commission merchants.¹ Clearing organization capital requirements are generally higher than those set by the CFTC and SEC.

¹See 17 CFR § 1.17 (1989) for CFTC capital requirements and 17 CFR § 240.15c3-1 (1989) for SEC capital requirements.

Liquidity and Capital Problems Occurred During the Crash

During the October 1987 market crash, some market participants, including clearing members, had too few funds to (1) meet their obligations from losses in the market and/or (2) aid some of their customers in honoring their payment obligations. The result was that these clearing members had to borrow money from banks or obtain it from other sources. Although clearing members routinely borrow from banks for this purpose on a daily basis, the amounts they needed during the crash were much higher than usual. In order to meet their payment obligations or comply with their clearing organization capital requirements, market participants and clearing members took one or more of the following actions:

- received a cash infusion from their parent firm,
- had their operations and financial obligations taken over by another firm,
- liquidated some or all of their market positions to obtain cash and reduce liabilities,
- liquidated other assets to obtain funds, or
- obtained additional bank credit.

For example, OCC officials said nearly 35 percent or 61 of OCC's members received capital infusions from their parent companies or partners subsequent to the October 1987 market crash. In another case, a clearing member was liquidated by the Securities Investor Protection Corporation² when its parent company did not provide additional capital. Several stock market participants, including at least one clearing member, also received capital infusions from parent companies or were taken over by the parent company. According to CME officials, some of their clearing member firms became temporarily undersegregated.³ This was because of the large deficits in the accounts of some customers, which resulted from the sudden adverse market moves against the customers' positions. The firms cleared up the undersegregated conditions by collecting margins from customers and infusing funds from other sources into the segregated accounts the following day. Further, it is noteworthy that, while most firms generally maintain between 10 to 20 percent excess funds in segregation to buffer against volatile markets, during

²The Security Investor Protection Corporation was created by Congress in 1970 to protect customer deposits and security holdings against broker-dealer insolvency.

³The Commodity Exchange Act requires that a futures commission merchant must segregate any funds received from a customer from the merchant's own funds. All funds received by a futures commission merchant to margin, guarantee, or secure the trades or contracts of its commodity customers, as well as funds accruing to those customers as a result of those trades or contracts, must be separately accounted for and segregated as belonging to those customers.

this particular market, such amounts were insufficient. Therefore, since the undersegregation was cleared up quickly and was solely due to the unusually adverse market conditions, the CFTC did not impose penalties.

The SEC crash report stated that many stock trading firms that clear their own trades had no established lines of bank credit to increase the funds available to them during periods of market volatility. To help solve the cash liquidity problem that some of these firms experienced during the crash, the SEC suggested that exchanges consider one or more of the following:

- establish lines of bank credit;
- apply higher per share capital requirements for firms that are unable to establish lines of credit at banks;
- require firms unable to obtain lines of credit to clear their transactions through a clearing member with established lines of credit; and
- establish a fund to finance these members in emergency situations.

To help solve liquidity problems during the crash, CFTC recommended that:

- the settlement agreements between clearing organizations and settlement banks should be clarified to establish that settlement bank confirmations, once communicated to the clearing organization, are final;
- a procedure be developed for adjustment of Fedwire hours in market emergencies or periods of extreme volatility;
- settlement banks should have increased access to financial data that would assist their evaluation of clearing member creditworthiness;
- intraday margin calls should be used on a daily basis by all clearing organizations as well as distribution of payments of excess margin to clearing members; and
- a risk exposure information system be established.

NSCC Has Maintained Current Capital Requirements

An NSCC official said that increasing a member's capital requirement, except to significantly higher levels that would restrict access to NSCC membership, would not protect NSCC against risk of financial loss. NSCC prefers to rely on the guarantee fund in which members are required to deposit to collateralize their risk. Also, according to NSCC officials, increasing a member's capital requirement would limit participation in NSCC since fewer members would be able to qualify. Since the market break, NSCC has maintained its member capital requirement that its

members maintain \$50,000 in capital in excess of whatever the member's capital requirement is as established by the SEC and the member's designated examining authority.

An SEC official said that increasing capital requirements of clearing members creates burdens for smaller clearing members. He also said that increasing capitalization will not solve the liquidity problem of assets not being liquid enough to be readily accessible.

OCC Has Increased Its Capital Requirements

The SEC, in May 1989, approved an OCC rule that increases new clearing members' membership requirements for net capital from \$150,000 to \$1,000,000. In addition, the amount of capital new and current clearing members must maintain after membership is granted was raised from \$100,000 to \$750,000.

CME Has Increased Its Capital Requirements

According to a CME official, since the crash, CME increased the minimum capital requirement for its clearing members from \$1 million to \$1.5 million per member in 1987 because of the volatility of contracts and the CME's concern over financial safeguards.

Guarantee Funds Help Provide Market Integrity

Most futures, options, and stock clearing organizations have established guarantee funds to pay off the debts to the clearing organization of clearing members that default on their payment obligations.⁴ A default occurs when a member fails to pay for receipt of securities or losses it incurred in the marketplace. By guaranteeing buyer and seller performance on contract provisions, clearing organizations become obligated to make these payments in the event of member insolvency. Clearing organizations require that all their members contribute to the fund and specify the amount and type of contribution. The contribution is subject to partial or total loss in the event the member or another member defaults on its payments.

The Working Group recognized the importance of guarantee funds being in the form of cash and/or instruments easily convertible to cash. They want clearing organizations to be able to quickly pay off a defaulting member's clearing organization in the event of a default. Most funds

⁴The guarantee fund is called the "security deposit" by the CME and the "clearing fund" by the OCC and NSCC.

consist of some combination of cash, U.S. Treasury securities, and bank letters of credit.

Each clearing organization has its own method of determining the amount members contribute to the fund, developed in consultation with federal regulators. The contributions are based on the level of financial risk the clearing organization is willing to accept. These organizations base contributions on the volume and the nature of business that their members conduct.

Clearing Organizations Reviewed Their Guarantee Funds

The market crash raised concern among federal regulators that some clearing members' guarantee fund contributions may not have been sufficient to meet their payment obligations, and that some clearing organizations might not have been able to quickly pay for losses had one or more major clearing members defaulted. The Working Group recognized the potential for problems and recommended that the stock, options, and futures clearing organizations review the adequacy of their guarantee funds and assess the adequacy of the guarantee fund contribution of each clearing member. The Working Group also recommended that federal regulators encourage clearing organizations to assess the liquidity of the guarantee fund and, if appropriate, require that guarantee funds be in the form of cash or cash equivalent.

Stock clearing organizations had major portions of their guarantee funds in letters of credit. Letters of credit are considered less liquid than cash or cash equivalents because banks that issue letters of credit may choose not to honor them. However, failure to honor a letter of credit is a serious matter and can have adverse consequences on a bank's reputation and credit. The SEC reported that in October 1988, five securities clearing organizations, including depositories, had an estimated \$1.08 billion in aggregate clearing fund deposits that consisted of \$500 million in U.S. Government Securities, \$212 million in cash, and \$296 million in letters of credit.

All the major clearing organizations reviewed the adequacy of their guarantee funds. The following briefly summarizes the results of their reviews and actions taken:

- Prior to the 1987 market crash, the NSCC proposed to change the way it calculates member contributions to the guarantee fund to reflect more

closely the risks the member has assumed in the market. The SEC temporarily approved the new method until December 1990. The new calculation method is more risk-based but may decrease the amount of funds available in NSCC's fund. The NSCC continues to rely on the use of letters of credit in its guarantee fund. NSCC officials said that they have never had to draw upon a letter of credit in the 11 years of their existence. Only 74 of their 410 members use letters of credit. SEC officials said that given the vital role that NSCC plays in securities markets and the consequences of its failure, caution would dictate less reliance on letters of credit.

- SEC and NSCC comment letters indicate that two recent changes have been initiated to increase the liquidity of NSCC's guarantee fund. On October 25, 1989, NSCC filed a proposed rule change with SEC to increase the minimum cash contribution for those members who use letters of credit and to limit the percentage of a member's deposit that may be collateralized with letters of credit. Also, on December 7, 1989, NSCC accepted a committed line of credit at \$200 million.
- The OCC raised its minimum guarantee fund contribution for stock option members from a minimum of \$10,000 to \$75,000 per member.
- The CME, in February 1988, adopted rules that resulted in CME increasing its guarantee fund from \$4.6 million to about \$35 million, eliminated the use of letters of credit in its fund, and changed the method it uses to calculate each member's contribution from a flat rate to a rate based on the member's average daily margin requirement.

Clearing Organizations Cannot Routinely Monitor the Financial Exposure That Clearing Members Have in All Other Markets

Clearing organizations in the stock, options, and futures markets have no single system to routinely monitor the financial exposure of clearing members that do intermarket business. The clearing organizations, therefore, may not be able to completely monitor risk because they have only a partial view of their clearing members' overall financial condition.

As part of their risk-management activities, clearing organizations daily assess the financial risks that each clearing member has in its market. The typical risk-assessment that clearing organizations make includes, but is not limited to, a determination of the following:

- the capital the clearing member has available,
- the money the clearing member needs to fulfill its market obligation, and
- the money the clearing member would need in the event of a market decline.

Each organization has the procedures and systems in place to make these daily risk-assessments within its own market. However, about 30 clearing members operate in the three markets and may buy and sell stocks, options, and futures all in the same day. These activities may or may not involve both intermarket and single-market trading strategies.

During the crash, some clearing organizations frequently communicated with other market clearing organizations and exchange audit departments, but there was no established system in place to do this routinely. As a result, one clearing organization could not quickly identify a specific clearing members' financial problems and made management decisions on the basis of inaccurate or incomplete information.

The SEC reported that on October 21, 1987, the OCC was notified by one of its clearing member's settlement banks that the bank would not honor a \$3.1 million margin payment request for the firm.⁵ The OCC analyzed the risks associated with the clearing member's position and decided to relieve the clearing member of its margin payment, primarily because OCC was holding \$12.5 million in collateral from that clearing member. However, according to the report, OCC later learned that the clearing member also was having difficulty financing a \$30 million settlement obligation at NSCC. To protect itself, OCC placed some restrictions on the clearing member, including daily capital computations and reporting requirements, capital restrictions, and a prohibition against opening new accounts.

NSCC Does Not Participate in the Futures Intermarket Information Sharing System

As of August 1989, NSCC does not use the futures intermarket information sharing system. This system is a potential mechanism that clearing organizations could use to help reduce intermarket risks. The BOTCC administers a futures clearance and settlement intermarket information sharing system. The system compiles payment and collection data on common clearing members that do business through two or more of the Nation's futures clearing organizations. Each night, these organizations provide settlement information to the BOTCC for each of their joint clearing members. The next morning, futures clearing organizations can access the system to obtain this information. The system enables clearing organizations to monitor their clearing firms' activities and helps assess the financial risks that their members have in their own and in other futures markets.

⁵Settlement banks in the options and futures markets make payment between clearing organizations and clearing members.

Chapter 3
Progress Made in Changing Clearing
Organization Risk-Management Systems Has
Been Slow

The OCC signed a May 6, 1988, agreement to join the information sharing system managed by BOTCC. However, as of September 1989, the OCC had not participated in the system because of concerns about how the system operates. OCC officials expressed concern that confidential data provided might be used for competitive purposes. For example, OCC said that the administrator of the system has first access to the data and may be able to receive margin payments from a common member that is facing financial difficulties before other clearing organizations. Because of these and other concerns, OCC suggested that a neutral organization should operate the information system. CFTC officials told us that the BOTCC information sharing system operates with a confidentiality agreement that guards against the misuse of data. They said that they told OCC that its cross-margining program would not receive regulatory approval without OCC's participation in the intermarket information sharing system. In October 1989, the OCC joined this intermarket information system.

As of September 1989, stock clearing data from NSCC is not shared with other clearing organizations through the system managed by BOTCC. BOTCC officials said that the system is technologically capable of accommodating data on stock clearing members. Because stocks settle in 5 days rather than in 1 day as do futures and options, some refinements to the system need to be incorporated before it can process stock data.

NSCC has not decided whether data on stock clearing members should be included in the system. In addition, NSCC rules do not provide for the sharing of confidential data with futures clearing organizations.

NSCC does not routinely share stock clearing information with futures clearing organizations, although NSCC officials said that they support the concept of intermarket information sharing. NSCC officials expressed concerns about information sharing arrangements, because of the different settlement time frames in the futures and stock markets. NSCC said that an arrangement to advise each other about a dual member not making a payment may be more useful than the exchange of settlement data. NSCC also said that it has more common clearing members with OCC than with futures clearing organizations and, therefore, has primarily focused on options market information sharing.

The Securities Clearing Group Is Improving Information Sharing

According to SEC, the stock and options clearing organizations created the Securities Clearing Group (SCG) in 1988 in an effort to establish a formal information sharing system.⁶ The SCG has formalized by contract existing information sharing arrangements among stock clearing organizations, including settlement, margin, and position information. The SCG plans to explore various improvements as follows:

- development of a central database that would maintain financial data on clearing members;
- improvement of SEC financial report requirements to strengthen clearing agency surveillance;
- development of arrangements that would permit the application of a defaulting member's margin, settlement credits, and guarantee fund contribution to meet outstanding obligations at other stock clearing organizations;
- development of a system to net clearing members' separate settlement debits and credits across stock clearing organizations; and
- development of routine settlement information sharing among SCG members and futures clearing organizations.

NSCC's comment letter notes that the SCG is currently creating the data base and doing work on several other of the above items. Although no specific time frame has been specified for completing the above tasks, these improvements, if implemented, should improve information sharing among stock and options clearing organizations.

Conclusions

Although federal regulators and SROs have made progress in implementing intramarket or market-specific recommendations, they need to strengthen the stock, options, and futures clearance and settlement system by further reducing or mitigating known risks.

During the past 22 months, federal regulators and SROs have not implemented some of the intermarket recommendations that seek to resolve problems caused by the linked nature of markets and intermarket trading strategies. Whereas intramarket recommendations can be implemented by individual federal regulators, intermarket recommendations

⁶The SCG includes OCC, NSCC, Depository Trust Company, Midwest Clearing Corporation, Midwest Securities Trust Company, Stock Clearing Corporation of Philadelphia, and the Philadelphia Depository Trust Company.

require a coordinated effort among the various affected parties. Different traditions in each market and differences of opinion on the merits of particular solutions are impeding change.

A major intermarket problem that still exists is the lack of an information sharing system. Clearing organizations in the three markets continue to assume unnecessary risk because there is not an intermarket information sharing system to evaluate intermarket risks when clearing members participate in multiple markets.

Recommendations

We recommend that SEC and CFTC reassess the adequacy of clearing organization use of letters of credit in their guarantee funds.

We also recommend that the Secretary of the Treasury, as Chairman of the Working Group, ensure that a routine intermarket information sharing system is developed and used to assess the intermarket risks posed by joint members. The Secretary, working with other members of the Group as well as the exchanges and their clearing organizations, should identify responsibilities, assign tasks, and set time frames for accomplishing this recommendation.

Comments and Our Evaluation

SEC said that we should consider NSCC's concerns on information sharing more carefully. These concerns are:

- BOTCC access to confidential information about clearing members,
- the possibility that futures clearing organizations may misinterpret pay/collect data and take inappropriate action on the basis of that information,
- the differences in settlement time frames between NSCC and derivative markets,
- the limited number of NSCC participants that are also members of futures clearing organizations, and
- other information that is more useful to clearing organizations than the size of pay/collect obligations.

OCC said the report does not define the arrangements that constitute competitively neutral and efficient information sharing and that the BOTCC system has serious drawbacks. OCC is concerned that since BOTCC is the system operator, the other clearing organizations are less than equal partners. OCC implies that BOTCC may be able to take advantage of the

information flow to protect itself relative to other clearing organizations.

We only use the BOTCC information sharing system as an example of a way to implement the Working Group recommendation for centralized collection and availability of clearing member's risk-exposure information. We agree that such a system should not provide an advantage to one or more of its participants. A risk-exposure information sharing system for joint clearing members should be jointly designed, operated, and controlled by clearing organizations in the three markets and could prove valuable in mitigating risks. Each participating clearing organization should have equal access to confidential information about joint clearing members.

A confidentiality agreement is currently in effect between futures and options clearing organizations. NSCC could sign this agreement. This confidentiality agreement could be monitored and enforced by the clearing organizations participating in the system. Because information useful to a clearing organization in one market may not be useful to a clearing organization in another market, the kinds of data displayed in the system could be agreed upon in advance by all clearing organizations. So that data are not misinterpreted and inappropriate actions are not taken, an understanding could be developed on how to interpret data, including the implications of different settlement time frames, and actions appropriate to certain types of data. NSCC participants who are not joint clearing members would not be in such a system.

Credit and Late Payment Problems in the Stock, Options, and Futures Markets Have Not Been Fully Resolved

Prompt payment or settlement is a cornerstone of efficient clearance and settlement systems. The Brady Report stated that during the crash, late payments to and from clearing organizations led to a loss of confidence by some market participants and speculation that some clearing members or clearing organizations could not meet their financial obligations. Two principal problems that led to late payments have not been fully resolved. First, the adequacy of available clearing member credit facilities in supporting payments is unclear. Second, some proposals to reduce cash demands on clearing members with intermarket positions have not been studied or fully implemented.

Credit and Late Payment Problems During the Crash

During the market crash, payments among market participants were much higher than usual. On October 19, 1987, CME requested over \$2.5 billion in payments from its members. The next day, CME requested an additional \$900 million from its members. For trade date October 19, OCC drafted \$1.18 billion. For trade date October 20, OCC drafted \$938 million from its members. Margin payments at CME on an average day are \$100 million. OCC's average daily margin payments are \$470 million. During the week of October 26, clearing corporations processed over \$100 billion in deliveries. Some market participants did not have sufficient capital or access to bank credit to make their payments on time.

The unusually large fund transfers among some market participants resulted in the use of all their available bank credit. Some banks had to make decisions about providing additional credit to clearing members in excess of their credit limits. In certain instances, banks delayed confirming payments to clearing members and clearing organizations until the banks were assured that market participants were financially sound. Rather than rely on bank credit, other clearing members obtained additional capital from their parent corporations.

Stock, Options, and Futures Markets Rely on Banks for Timely Payment and Credit

Options and futures market participants rely on commercial banks to pay and collect funds for their market transactions. Banks establish accounts for each of their options or futures market participants and transfer funds to settle payment obligations when requested. In the stock market, clearing members and their clearing organizations or depositories settle their payment obligations by certified check. Many market participants typically do not have adequate funds in their bank accounts to pay for their market obligations and, therefore, rely on banks for short-term loans. The majority of these bank loans are on a secured basis and the participant must provide collateral for the loan.

Collateral that banks accept varies and usually consists of stocks, bonds, treasury bills, and other assets. Some banks also provide loans on an unsecured basis to a small number of well-capitalized market participants.

Some Clearing Members Were Late Paying Their Clearing Organizations During the Crash

Some clearing members in the stock, options, and futures markets were late in paying their clearing organizations during the market crash. In addition, three NSCC clearing members, one that was also an OCC clearing member, defaulted or withdrew from the clearing organization or depository membership. Two of the three members were in a credit position or had a clearing fund deposit to cover their settlement debts. The other member caused a \$400,000 loss to NSCC. According to the SEC February 1988 Report, between October 19 and October 30, 1987, clearing members made late payments to stock clearing organizations approximately 50 times. These late payments were similar to late payments made during the preceding and following months in terms of frequency and amounts. On October 19, 20, and 21, OCC received late payments from several of its members. According to CME, clearing banks were late in confirming member payment for 26 of CME's 90 clearing members. Thirteen of those payment confirmations were between a half hour and an hour late on October 20. These late payment confirmations violated clearing organization rules and increased clearing organization risk. CFTC officials said that although some payment confirmations from clearing banks to the CME House Division were late, by the time of the opening of the S&P 500 contract for trading, all payment confirmations were received by CME.

Some clearing members were late in paying or did not pay their clearing organizations for a variety of reasons, including the following:

- The clearing member or one or more of its customers were unable to cover losses in the market.
- The clearing member had insufficient funds to pay for its losses in the market, and its parent company was unable or unwilling to provide additional funds.

In addition, the following factors may have contributed to delayed settlement payments:

- The clearing member needed more time to secure additional collateral. The value of collateral used to obtain credit at banks had depreciated with the large decline in stock prices.

- One bank would no longer accept options contracts as loan collateral.
- Some banks delayed extending additional credit to market participants until their creditworthiness was established.
- According to a CME official, senior bank officials at some banks outside Chicago were not available to make credit-approval decisions during this crisis.
- The federal wire transfer system essential for fund transfers did not work on several occasions.
- Clearance and settlement processing delays of noncash margin calls at the CME resulted in payment delays.

Revised Settlement Agreements and Routine Intraday Pays and Collects Will Help Resolve Late Payment Problems

CFTC officials told us that renegotiated settlement agreements with banks should help prevent any late payments in the futures clearance and settlement system. As of October 21, 1988, the CME and each of the four Chicago settlement banks have entered into uniform agreements that clearly specify the obligations of parties in honoring settlement instructions received from the clearing organization and the timing and finality of payments between clearing members and clearing organizations. The agreement unambiguously requires each clearing bank either to pay member obligations through irrevocable credits to the respective clearing organization's account or to inform the CME that the payment cannot be processed by a certain time before the opening of regular trading hours. Under this agreement, to the extent that a clearing bank has not received funds from a clearing member when it commits to honor settlement instructions, it is making a credit decision. The clarification of that fact should cause clearing banks to assess the basis upon which they are conferring credit to particular clearing members.

CFTC officials also said that the use of routine intraday pays and collects at CME, introduced in March 1988, should help prevent late payments in the futures clearance and settlement system. The CME reports that its settlement banks have confirmed that the use of intraday settlement reduces the period during which margin obligations remain unsatisfied and generally results in a smaller aggregate cash payment at morning settlement.

The Adequacy of Available Clearing Member Credit Is Not Clear

Although federal regulators, clearing organizations, clearing members, and banks are aware of the credit problems that occurred during the market crash, limited progress has been made in resolving credit problems. Market participants are still susceptible to cash flow problems and restricted credit during volatile markets.

According to an official from a major options clearing member that experienced severe late payment problems during the crash, the firm continues to maintain investment portfolios and collateral funds similar to what it held before the market crash. Market participants and the banks that provide them credit have not reached any formal agreements on ways to facilitate adequate, yet prudent, credit in all market situations. Many banks do not consider it prudent to accept options as collateral because they are unfamiliar with valuing options.

Officials at banks in New York said that they increased credit to broker-dealers after the crash and will do so again in any future crash for clearing members who are worthy of credit. However, the current levels of committed or secured lines of credit are unclear. Some clearing members may be unwilling to pay for them since committed lines of credit are more expensive than uncommitted lines of credit that can be withdrawn. A CFTC official said that even committed lines of credit have provisions so that banks can withdraw them in certain extreme situations.

SEC officials said that the acquisition of credit is the responsibility of the clearing member and not that of the clearing organization. The Clearing Organization Clearing Bank Roundtable is focusing on credit facilities of clearing members and is considering ways to see that clearing members have adequate credit.¹ Because of confidentiality and privacy concerns, clearing members and banks have been reluctant to openly discuss the issue.

The OCC Was Late in Paying Its Clearing Members

OCC's rules require OCC to pay its members at a specified time, and are not contingent on the receipt of funds from other members. The OCC made late payments to all of its clearing members on October 20, 1987. OCC delayed paying its members from 2 to 2-1/2 hours because it did not receive prompt payment from various clearing members. According to

¹The Clearing Organization Clearing Bank Roundtable was created by the CME and BOTCC to open lines of communication among futures and securities clearing organizations, their respective federal regulators, and the banks that provide settlement services for the clearing organizations and their members. It meets quarterly.

the Brady Report, late payments to clearing members during the crash led to rumors concerning the viability of clearing organizations.

SEC and CFTC reported that clearing organizations should pay their clearing members promptly at settlement time in accordance with clearing organization rules and bylaws. SEC and CFTC also reported that payments guaranteed by the clearing organizations should not depend upon the clearing organization's receiving funds from clearing members that owe money to the clearing organization. The Working Group recommended that the SEC and CFTC confirm that options and futures clearing organization guarantees ensure timely payments to clearing members in accordance with clearing organization rules and bylaws. Since issuing its report, the SEC discussed this issue with OCC. On October 11, 1989, OCC submitted a rule change to SEC for its review and approval. OCC officials told us that the new rule will enable OCC to make money settlements to its members on time.

CME Made Late Payments to Two Clearing Members

On October 20, 1987, the CME made late payments of margin funds from its Clearing House Division to 2 of its more than 90 clearing members. On October 19, in response to unusual market price declines, the CME made three margin calls during the trading day ("intraday").² According to a CME official, CME did not routinely make intraday margin calls and did not have detailed procedures in place for processing noncash collateral. When the CME produced clearing and banking reports on October 20 for trading that occurred on October 19, the reports did not reflect certain intraday margin amounts that clearing members had already paid to CME in securities. Because of this, some banks were unsure of their payment obligations for a certain period of time on October 20. CFTC officials told us that although these funds were paid later than normal, they were made within legal parameters for payment.

A CME official stated that the noncash margin processing problem was further compounded by the size and number of payments that had to be processed by the settlement banks. The large payments, in some cases, delayed the credit-approval process at the settlement banks, a problem that was compounded by CME's policy of only collecting intraday margin payments from members whose contracts declined in value and not paying out intraday margin to clearing members whose contracts had

²Futures market margin calls are requests by the clearing organization to its members for additional cash for each contract that decreased in market value. Payment of margin calls by the clearing member is required within a specified time frame.

increased in value. Furthermore, CME experienced difficulties in getting hold of senior decision makers at some clearing members and at some non-Chicago based banks early in the morning on October 20. The actual processing of the payment instructions and the movement of funds were delayed by the Fedwire being inoperable at two times during the day. As a result, two clearing members received payment of a total of \$1.5 billion 6 hours late on October 20.

Some Proposals to Reduce Cash Demands on Clearing Members With Intermarket Positions Have Not Led to Reform

Each clearing organization independently determines the overall risk its clearing members pose. Clearing members that operate in the futures, options, and stock markets simultaneously are required to meet margin requirements in each market. However, a member's intermarket trading positions are not normally a factor in determining its margin payment requirements in each market. Trades made in one market are protected against potential losses with trades made in another market, but margin is collected in both markets. Because of these multiple market cash demands, several options and futures market participants did not have access to enough cash during the market crash to meet all their payment deadlines.

Industry and federal regulators made various proposals to increase the liquidity of the markets by reducing cash demands on clearing members and market participants during periods of market volatility. For example, the Working Group suggested that exploring measures to reduce the size of net cash flow obligations should be a priority. As a result, the Working Group reviewed a list of proposals and recommended that studies be undertaken to determine their costs and benefits. Some reform proposals seek to eliminate unnecessary cash demands on market participants by changing the way clearing organizations clear and settle trades and calculate payments. Other reform proposals would increase the liquidity of the markets by increasing the availability of bank credit. Proposals to increase credit availability have included imposing uniform rules as to how a bank as a creditor establishes claim to securities that it accepts as loan collateral. The SEC and CFTC have reviewed the various reform proposals, but some proposed reforms have not been implemented because no consensus exists on which reforms are most appropriate and how they should be implemented. The suggested reforms include:

- "Cross-margining," or allowing clearing organizations in different markets to give credit to a clearing member for related market positions in other markets, thereby reducing the amount of original margin funds

the clearing member must pay. For example, under a cross-margining system, a clearing member that traded futures contracts and offsetting options contracts to reduce the members' exposure to market losses, would only have to make a single margin payment based on the reduced risk of the combined positions.

- Exploring other arrangements between clearing organizations in different markets that would reduce the cash payments among participants. One of these arrangements is netting of clearing member transactions and payment obligations. For example, if a clearing member had to pay \$50,000 to one organization and collect \$40,000 from another, under a netting arrangement the clearing member would only pay \$10,000 in cash and the clearing organizations would net the difference by book entry. According to CFTC officials, netting would be difficult if trade guarantees in different markets become effective at different periods in time.
- Exploring the use of futures-style margins for options contracts, which would require daily pays and collects of margins on options, as is currently done in the futures markets. This would in some cases reduce the credit that market participants currently need to meet their payment obligations in the options market.
- Consolidating stock, options, and futures clearing organizations' operations in order to reduce cash flows and simplify payment and operational procedures.
- Reforming state commercial laws to impose a uniform rule governing how banks as creditors establish a claim to uncertificated securities, such as certain types of stocks or options contracts.
- Resolving the ambiguity in bankruptcy rules concerning how to establish a customer's priority during the liquidation of a firm that had operated both as a securities broker-dealer and a futures commission merchant. This is an incidental clearance and settlement issue concerning coordinating the rights of securities and futures customers in the event of a default of a financial firm.
- Shortening the 5-day settlement time frame for routine stock transactions with the goal of reducing risk. This was also called for by the Group of Thirty who would like to see all nations adopt systems that would settle stock transactions in 3 days after the trade by the year 1992.

Of these reform proposals, cross-margining has been partially implemented by a pilot program. The other proposals are still in various stages of discussion, in large part, because opinions vary widely on their merits and on how to implement them. The following is the status of the proposals listed above:

- Clearing organizations have initiated two cross-margining pilot programs. The OCC and its futures-clearing subsidiary, the Intermarket Clearing Corporation (ICC), developed one program, and the OCC and the CME have developed another program. Both programs, however, are limited by CFTC and SEC to firms trading on their own behalf, thereby excluding any use of customer funds. This limitation is necessitated by the CFTC requirement that customer funds be held separately from firm proprietary funds. Only a small number of clearing members are eligible to participate in cross-margining programs. As of August 1989, the OCC-ICC cross-margining program had only one active participant. The OCC and CME cross-margining program was approved by CFTC and SEC in September 1989. According to a CME official, as of October 31, 1989, three firms were actively participating in the program. SEC and CFTC officials said that cross-margining programs will provide a test of one means of resolving cash flow problems and is a step towards integrating clearing. However, CFTC officials said they are concerned that the overall resulting margin must not be too low. A CME official said that if regulatory approval is extended to include customer positions, activity in the OCC-CME program should increase.
- Netting, which would result in the reduction of payments among clearinghouses in different markets, has been discussed, but no specific approaches to netting of payments have been explored. No comprehensive studies of intermarket netting have been completed. CFTC officials said that some clearing members would be reluctant to have a single bank aware of all their business on major exchanges. Presumably, they could use knowledge of their cash flows to identify their trading strategies. CFTC has requested from SEC information on options cash flows in October 1987 that may be helpful to evaluating the impact of netting. CFTC officials told us that while netting and cross-margining programs may improve liquidity, they may do so at the expense of solvency. Reduced payment flows may reduce the integrity of the clearance and settlement system by decreasing the amount of cash deposited in clearing organizations, thereby reducing liquidity risks.
- The Chicago Board of Trade (CBT) and CME petitioned CFTC in July 1988 to change their existing rules that prohibit futures-style margin on options. These changes, if approved, would allow futures-style margining on some options on futures contracts. The CFTC has requested and reviewed public comments and is analyzing the arguments for and against this proposed rule change. As of December 1989, CFTC had not acted on the petition. In 1982, the CFTC rejected a similar proposal because it said an investor may lose more than the original investment and inexperienced investors might take unnecessary risks. Neither the Chicago Board Options Exchange (CBOE) nor OCC have petitioned SEC for

futures-style securities options margins. SEC is concerned that adoption of futures-style margining for securities options could change the economics of options trading by eliminating the usefulness of certain strategies. They believe that such changes could eliminate as much as 30 to 50 percent of options trading activity today. They also are concerned that futures-style options margins, if applied to reduce initial margin deposits, could increase the ability of long option holders to leverage their investments and could permit holders to control substantial positions in securities index options at almost no cost, possibly increasing systemic risk. OCC officials said that futures-style margining of options would increase market risk for their customers and present operational difficulties for their members. In addition, they said that futures-style options margins would reduce business in the options markets. CME officials said that they do not advocate futures-style margins for securities options. They said that the treatment of securities options in this manner could create an artificial need for cash in the options market if the stock market moved against an options position of someone hedging a stock position in the options market.

- “Coordinated,” “integrated,” and “unified” clearing have been discussed. Opinions vary widely regarding whether and how clearing operations could be coordinated or in some way centralized. Many clearing organizations and market participants said they oppose centralized clearing for all markets. Their arguments against centralized clearing include the need for clearing organizations to be responsive to the needs of individual markets, and the potential danger to the clearing system of concentrated risk. According to CME, under the current system it is possible for one clearing organization to experience financial upheaval and, conceivably, even cease to exist without having a major impact on other parts of the market. Other clearing organizations and clearing members have acknowledged the possible benefits of centralized clearing, citing lower operational costs. CFTC officials said that if cross-margining programs are successful and the netting of cash flows among clearing organizations is adopted, integrated clearing might not be necessary. CFTC officials said that integrated clearing would result in information sharing. SEC and CFTC officials said existing intermarket systems should be improved first. An additional study of structural changes to clearance and settlement systems, if necessary, could follow these improvements.
- An American Bar Association committee is studying ways to resolve uncertainty about how a creditor establishes a claim to uncertificated securities, including certain types of stock and options contracts. This uncertainty reduces the availability of bank credit by discouraging banks from accepting such securities as loan collateral. Uncertainty

arises because creditors' claims to securities are governed by the commercial codes of the various states. Although most states have modeled their commercial codes on the Uniform Commercial Code, individual provisions vary from state to state and are subject to different interpretations in state courts. A bank extending credit for a multistate transaction may not know which set of rules apply. To eliminate uncertainty, the Business Section of the American Bar Association is studying ways of imposing a uniform set of rules on all participants in securities markets.

- An American Bar Association committee is studying an incidental clearance and settlement issue concerning coordinating the rights of securities and futures customers in the event of a default of a financial firm. This issue concerns the establishment of a customer's priority during the liquidation of a firm that operated both as a securities broker-dealer and a futures commission merchant. Different bankruptcy rules apply to these two types of financial activities. Subchapter III of Chapter 7 of the Bankruptcy Code, which governs the liquidation of securities broker-dealers, establishes a priority for securities customers but leaves futures customers in the status of unsecured creditors. Conversely, bankruptcy regulations issued by CFTC, which govern futures commission merchants, establish a priority for futures customers but not for securities customers. Whether securities or futures customers have priority to the assets of a firm that engages in both activities is unclear.

Resolving the ambiguity in bankruptcy rules is complicated by the fact that the SEC and CFTC do not have equal authority over bankruptcy rules applicable to firms under their respective jurisdictions. The Commodity Exchange Act grants the CFTC broad authority to issue regulations governing the liquidation of a futures commission merchant, including the determination of what property is customer property or identifiable as belonging to a particular customer and how the firm is liquidated. SEC, on the other hand, does not have any authority to issue bankruptcy regulations and, therefore, has a limited ability to define the effect of the bankruptcy code on broker-dealers.

- Although no agency has done a formal study of the costs and benefits of shortening the stock settlement cycle, the move to accelerate trade matching systems and improve trade reconciliation processing should facilitate achievement of the Group of Thirty recommendations to settle all stock trades by 3 business days after a trade is made. However, other factors are instrumental to the success of earlier stock settlement. Although no technological impediments have yet surfaced, shortening the clearance and settlement cycle for stock transactions will require

changes in the institutional and retail sectors of the stock market. A private sector review committee charged with implementation of Group of Thirty recommendations is currently discussing compressing the settlement period. They have reported that the current method of trade confirmation and affirmation with institutional clients will need to be accelerated. The current institutional delivery environment will need to be changed to an intraday, interactive trade confirmation system. They also have recommended that by January 1, 1992, all new issues of corporate securities, which include initial public offerings and secondary distributions, be in book-entry only or certificateless format. Retail customers will have to accept owning stocks without receiving certificates. This would require extensive educational efforts, but, according to securities industry officials, the cost saving of such an effort would far outweigh the expense of moving to a certificateless or book-entry-only trade processing environment. Also, the mailing of personal checks as a form of payment may have to be eliminated and electronic payment systems may have to be used.

Conclusions

Federal regulators and SROs have not implemented all the intermarket Working Group recommendations designed to reduce cash demands. Studies of netting of cash flows among clearing organizations and of integrated clearing have not been completed. Although these recommendations are more difficult to implement than market-specific or intramarket recommendations, they could rectify problems that pose great risks to clearance and settlement systems.

Recommendations

We recommend that the SEC and CFTC ensure that appropriate mechanisms are in place to assure that payments required by clearing members and clearing organizations are made within established time frames.

We recommend that the Secretary of the Treasury, as Chairman of the Working Group, ensure that studies exploring ways to lessen intermarket cash flow pressures and to simplify intermarket clearing without diminishing safeguards against financial risk are completed and acted on appropriately. The Secretary, working with other members of the Group as well as the exchanges and their clearing organizations, should identify responsibilities, assign tasks, and set time frames for accomplishing this recommendation.

Comments and Our Evaluation

OCC said that the report does not sufficiently emphasize the benefits of cross-margining in reducing risk and cash flows.

Pilot cross-margining programs are a promising step in the direction of recognizing components of related portfolios and smoothing out asynchronous cash flows. However, current cross-margining programs only apply to a limited cross-section of trading activity and may increase liquidity at the expense of solvency. Without further action by the CFTC regarding various rule interpretations, an expansion of cross-margining programs is not possible. Cross-margining programs do decrease the overall level of margin funds in the system.

CFTC said that the report focuses on liquidity issues to a greater extent than it does on issues of financial integrity and that the report emphasizes liquidity over solvency. CFTC says there is a trade-off between liquidity and protection against risk.

We recognize the trade-off between liquidity and solvency and agree that liquidity should not be improved at the expense of solvency. Our second general recommendation has been amended to note this concern. We say that studies exploring ways to improve liquidity and simplify intermarket clearing should be completed and acted upon without diminishing safeguards against financial risk.

CME questioned our grounds for concluding that markets are still at risk. The grounds for our overall conclusion that the markets are still at risk are contained in appendix I. Although progress has been made in many areas, particularly in the processing of trades, more needs to be done to improve procedures to handle financial risk and to ensure that payments are made within established time frames. In particular, some actions requiring intermarket cooperation have not been completed. An intermarket information sharing system of risk-exposure information on joint clearing members has not been completed, nor have studies been undertaken exploring ways to lessen intermarket cash flows and simplify intermarket clearing.

Status of Reform Recommendations on Clearance and Settlement of President's Working Group on Financial Markets

Working group recommendation	Issue type	Action taken
I: Trade Processing Issues		
The SEC and CFTC should review futures and options clearing organization guarantees of timely payments to clearing members.	Market-Specific	Completed
The SEC and CFTC should encourage OCC and futures clearing organizations to coordinate margin calls and settlements.	Intermarket	None
The SEC should encourage movement toward same-day trade comparison for stocks, and SEC and CFTC should foster progress toward on-line trade matching systems at the exchanges.	Market-Specific	Progress

**Appendix I
Status of Reform Recommendations on
Clearance and Settlement of President's
Working Group on Financial Markets**

SEC	Federal Regulator Action/Position			Clearing Organization Action/Position		
	CFTC	FRS		CME	NSCC	OCC
Reviewed OCC rules. OCC's current policy is to pay members on time if these members are not in default on payment obligations.	Monitored development of new uniform agreements between clearing organizations and settlement banks.	N/A		Improved trade processing systems and procedures to handle multiple daily margin pays and collects.	N/A	OCC reviewed its ability to meet its payment obligations and SEC reported that, under current market conditions, OCC has sufficient guarantee fund resources to meet isolated payment defaults.
Monitored SRO discussions.	Monitored SRO discussions.	N/A		Intraday margin calls were introduced. For intraday margin calls, CME now pays its excess margin funds to members whose contracts increased in value. Discussed with banks, federal regulators, and other clearing organizations.	N/A	Officials said the business hours of non-Chicago banks do not lend themselves to this recommendation. Also, Fedwire is not open at 7 A.M. central time.
Approved pilot implementation of NYSE on-line trade matching system as first step toward Overnight Comparison System. Partial approval given to NASD proposal regarding the Automated Confirmation Transaction System. Approved NSCC acceleration of trade comparison functions from 2 days after the trade date to the day after the trade date for NYSE, AMEX, and NASD trades.	Monitoring SRO actions.	N/A		CME instituted a pilot program for an electronic trade order routing system. CME now has at least three intraday matches.	NYSE: Implemented an on-line trade matching system in last quarter of 1988 as first step toward an Overnight Comparison System. NASD: Implemented and requires its members to use Trade Acceptance Reconciliation System to facilitate same-day or next-day automated resolution of unmatched trades.	N/A. The OCC does not march trades. Options exchanges match their trades and send matched trade information to OCC.

(continued)

**Appendix I
Status of Reform Recommendations on
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Working group recommendation	Issue type	Action taken
The NYSE, NASD, AMEX, clearing organizations, and market participants should identify costs and benefits of an earlier settlement time frame for securities and identify how a shorter time frame can be implemented.	Market-Specific	Progress
II. Risk-Management Issues		
Working Group should encourage establishment of regular meeting schedule between futures and securities clearing participants and federal regulators.	Intermarket	Completed
Clearing organizations should review adequacy of clearing member guarantee fund contributions. Federal regulators should assess results of these reviews.	Market-Specific	Progress
The SEC and CFTC should encourage securities and futures clearing organizations to explore the desirability of converting portions of existing securities and futures guarantee funds to cash or cash equivalents on an incremental basis.	Market-Specific	Progress
Procedures should be implemented for centralized collection and availability of pay and collect information.	Intermarket	Progress

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SEC	Federal Regulator Action/Position			Clearing Organization Action/Position		
	CFTC	FRS	CME	NSCC	OCC	
Working to support Group of Thirty private initiatives to implement this goal.	N/A	N/A	N/A	No formal study of recommendation. Working with exchanges and NASD towards a more automated reconciliation cycle and earlier trade reporting by members. Working to implement Group of Thirty recommendation to move settlement to 3 days after the trade date.	N/A	
Participated in Clearing Bank Clearing Organization Roundtable.	Participated in Clearing Bank Clearing Organization Roundtable.	Participated in Clearing Bank Clearing Organization Roundtable.	Organizer and participant in Clearing Organization Clearing Bank Roundtable.	Organized and participated in Clearing Bank Clearing Organization Roundtable. NSCC representative chairs the Securities Clearing Group.	Participant in Clearing Bank Clearing Organization Roundtable. Participant in Securities Clearing Group.	
Clearing organization rule changes under consideration. Temporarily approved NSCC changes.	Reviewed and approved CME increase in member contribution requirement.	N/A	Increased requirements in Feb. 1988 by adopting risk-based rate for member contributions.	Submitted to SEC proposed changes in contribution requirement. New requirement is risk-based. Rule filing pending at SEC.	OCC increased its minimum clearing fund contributions.	
Clearing organization rule changes under consideration.	Approved a CME rule change to eliminate letters of credit.	N/A	Eliminated letters of credit from its security deposit in April 1989.	Reviewing increasing the minimum cash contribution by member.	N/A. OCC has no letters of credit in its guarantee fund.	
Has encouraged NSCC and OCC to join BOTCC information sharing system. SEC officials noted concerns about confidentiality and problems with the aging of data.	Sent correspondence to OCC encouraging OCC participation in BOTCC information sharing system.	N/A	Full participant in the futures and options intermarket information sharing system.	NSCC Board has approved the concept, but NSCC noted concerns with current system.	OCC participates in the BOTCC and SCG information sharing systems.	

(continued)

**Appendix I
Status of Reform Recommendations on
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Working group recommendation	Issue type	Action taken
Develop a trial reporting system of large-trader data for OCC positions and consider changes to securities laws necessary to obtain large-trader data.	Market-Specific	None
III. Credit and Liquidity Issues		
The CFTC and SEC should monitor options and futures self-regulatory organization progress in revision of settlement agreements with clearing banks.	Market-Specific	Completed
Federal regulators should review clearing member credit arrangements to support large payments to clearing organizations.	Intermarket	None
FRB should explore earlier opening of the Federal wire transfer system. Market participants should assure smooth market operations on bank holidays.	Intermarket	Progress
The CFTC and SEC should expedite consideration of the ICC-OCC proposal for a pilot cross-margining program. Other clearing organizations should be encouraged to consider cross-margining. The CFTC should evaluate whether floor traders and market makers can participate in cross-margining pilot programs.	Intermarket	Progress
The CFTC and SEC should formulate a coordinated approach toward FCM/broker-dealer bankruptcy laws and identify areas requiring legislative action.	Intermarket	Progress

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Federal Regulator Action/Position			Clearing Organization Action/Position		
SEC	CFTC	FRS	CME	NSCC	OCC
Proposed legislation in June 1988 to increase SEC large transaction reporting requirements. Legislation was not enacted as of Nov. 1989.	Offered to initiate pilot program whereby CFTC futures position data would be used to verify OCC futures position data.	N/A	N/A	N/A	OCC has an internal large trader reporting system. However, OCC and SEC have not developed an external large trader reporting system for OCC positions.
Monitored review.	Monitored revisions.	N/A	Finalized revised agreements in Oct. 1988. Agreements further specify settlement procedures and timing and finality of payments.	N/A	Reviewed agreements with banks and decided no revisions were needed.
Discussed at Futures/Securities Clearing Roundtable.	Discussed at Futures/Securities Clearing Roundtable.	Discussed at Futures/Securities Roundtable.	Discussed at Futures/Securities Clearing Bank Clearing Organization Roundtable.	Discussed at Futures/Securities Clearing Organization Roundtable.	Discussed at Futures/Securities Clearing Bank Clearing Organization Roundtable.
Expanded Fedwire neither necessary nor cost effective at this time.	Supports FRS informal agreement to extended hours on an as-needed basis.	Performed an internal study and concluded that federal wire transfer hours do not need to be extended as a rule.	An official said federal wire transfer hours should be extended.	N/A	Discussed with members, FRS, and Securities Clearing Group. Concluded that wire transfer problems did not contribute to problems during the market crash.
Approved in Oct. 1988 1 year ICC-OCC pilot cross-margining program. CME-OCC cross-margining proposal has been approved.	Approved in June 1988 ICC-OCC pilot cross-margining program. CME-OCC cross-margining proposal has been approved.	N/A	Initiated cross-margining program with OCC in Oct. 1989. As of Oct. 1989, the program has three active participants.	N/A	1) The ICC-OCC pilot cross-margining program was approved in 1988. As of Aug. 1988, the program had one active participant. 2) Initiated cross-margining program with CME in Oct. 1989. As of Oct. 1989, the program had three active participants.
Referred the issue to the American Bar Association for further study. Staff members participate on ABA committee.	Referred the issue to the American Bar Association for further study. Staff members participate on ABA committee.	N/A	N/A	Staff members participate on ABA committee.	N/A

(continued)

**Appendix I
 Status of Reform Recommendations on
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 Working Group on Financial Markets**

Working group recommendation	Issue type	Action taken
Consideration should be given to whether legislation is necessary to establish federal rules for the transfer and pledge of stock and securities options.	Intermarket	Progress
The practical impediments to and risk implications of futures-style margining of options should be explored.	Intermarket	Progress
The Working Group should encourage the SRO's, in conjunction with clearing banks, to explore approaches to netting of payments obligations.	Intermarket	None
Futures and securities clearing organizations should identify costs and benefits of integrated clearing and determine how integrated clearing could be achieved.	Intermarket	None

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SEC	Federal Regulator Action/Position		Clearing Organization Action/Position		
	CFTC	FRS	CME	NSCC	OCC
Submitted in June 1988 draft legislation that authorized SEC to establish federal rules for the transfer and pledge of securities transaction, including options, if SEC determined such rules are needed. Referred state commercial law and choice of law issues to ABA committee.	N/A	N/A	N/A	Staff members participate on ABA committee.	Staff members participate on ABA Committee.
Reviewing CME and BOTCC proposals. Officials cited lack of interest by OCC and Chicago Board of Options Exchange.	Under discussion. Reviewing CME and CBT petitions to change CFTC rules.	N/A	Petitioned CFTC in July 1988 to change its existing rules that do not allow futures-style margins on options.	N/A	Officials said futures-style margins would increase market risk for their customers and present operations difficulties for their members.
Under discussion in SCG and Futures/Securities clearing Roundtable.	Requested information from SEC regarding the potential impact of netting. Officials said they are not aware to any practical way to net cash flows across markets.	No specific action. General studies of netting are ongoing.	Officials said CME-OCC cross-margining program is a step toward netting.	NSCC currently nets payments with Depository Trust Company.	Officials said CME-OCC cross-margining program is a step toward netting.
Proposed legislation in June 1988 calling for SEC and CFTC to facilitate linked or coordinated clearance and settlement of all markets. Legislation was not enacted, and on other action has been taken. Staff said studies of integrated clearing are premature.	Staff said integrated clearing is best achieved by information sharing of risk.	FRS officials cautioned against the concentration of risk.	Issued position paper saying that united clearing would dramatically decrease the financial integrity of the markets.	Officials said integrated clearing requires 1) resolving jurisdictional disputes among regulators, 2) establishing uniform regulatory standards across markets, and 3) expanding commonality of procedures and policies throughout the industry. Working with Securities Clearing Group and SEC.	OCC issued a report on clearance and settlement and discussed integrated clearing in the report.

Comments From the Department of the Treasury



DEPARTMENT OF THE TREASURY
WASHINGTON

UNDER SECRETARY

December 14, 1989

Dick
Dear Mr. Fogel:

My staff and I have reviewed the copy of the draft report you sent to Secretary Brady entitled "Clearance and Settlement Reform: The Stock, Options, and Futures Markets are Still at Risk."

The Report should be a constructive and timely addition to the work done since October 1987 on the subject of clearance and settlement in the equity, futures, and options markets. The more the problems in this area can be highlighted and examined the better our chances of seeing real progress in solving some of the problems.

As the Report points out, there have been some achievements in expanding the capacity of the clearance and settlement systems to handle heavier trading volumes. It is in coordinating the various clearing organizations and in assessing their risk exposure that more progress is necessary. We believe your report will prove helpful in this regard.

The Working Group on Financial Markets ranks progress on clearance and settlement issues among its highest priorities and will do its part to advance your recommendations within the Working Group. We believe the Working Group is an appropriate forum in which the member agencies can address these issues and formulate approaches to shared concerns.

It was a pleasure contributing to your work on the Report. I am certain it will be well received.

Sincerely,

Robert R. Glauber
Under Secretary for Finance

Mr. Richard L. Fogel
Assistant Comptroller General
General Accounting Office
Washington, DC 20548

Comments From the Securities and Exchange Commission

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



DIVISION OF
MARKET REGULATION

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

January 5, 1990

Richard L. Fogel
Assistant Comptroller General
General Government Programs
General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Re: Clearance and Settlement Reform

Dear Mr. Fogel:

The Commission has authorized me to respond to your request on November 21, 1989, for comments on a report ("Report") of the General Accounting Office ("GAO") concerning the progress of clearance and settlement reforms in the stock, options, and futures markets since the October 1987 market break. The Report focuses on the recommendations made by the President's Working Group on Financial Markets ^{1/} ("Working Group") and the Group of Thirty. ^{2/} As a general matter, although GAO concludes that certain clearance and settlement problems that occurred during the October 1987 market break have been solved, others require further attention. Specifically, GAO endorses the Working Group and Group of Thirty recommendations and recommends that the Working Group take a leading role in implementing the recommendations to ensure that: (1) a routine intermarket information sharing system is developed and used to assess the intermarket risks posed by members of multiple markets; and (2) studies exploring ways to lessen intermarket cash flow pressures and to simplify intermarket clearing are completed and acted on appropriately.

We appreciate the opportunity to comment on the Report. Safe and efficient clearance and settlement of securities, options and futures transactions are of the utmost importance to the operation of our nation's financial markets. Reducing the risk of loss due to weaknesses in the clearance and

1/ Working Group on Financial Markets, Interim Report to the President of the United States (May 1988) ("Interim Report")

2/ Group of Thirty, Clearance and Settlement Systems in the World's Securities Markets (March 1989).



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settlement system continues to be one of the Commission's highest priorities. We support the general recommendations contained in the Report. Our comments, detailed below, are offered as a supplement to the Report.

I. General Comments

A. Market Reform Legislation

We agree with GAO that coordination of clearing systems for options, futures and equities is essential. Toward this end, the Commission submitted to Congress in June 1988 proposed legislation that would direct the SEC and the Commodity Futures Trading Commission ("CFTC"), in consultation with the Board of Governors of the Federal Reserve System ("Fed"), to foster the development of coordinated and linked intermarket clearing systems. As the Report identifies, clearance and settlement systems are complex and technical. Many of the changes that are likely to be needed require action by the CFTC, Fed and SEC. For this reason, the Commission's proposed legislation would clarify SEC and CFTC authority, and establish a timetable for agency and industry action, among other things, by requiring both agencies to report to Congress on progress toward linked and coordinated intermarket clearance and settlement systems. We urge GAO to focus on the legislative proposals currently before Congress and to formulate its views on the need for that legislation.

See comment 1.

The Commission also proposed that Congress amend Section 17A of the Securities Exchange Act of 1934 to authorize the Commission, where necessary to the safe and efficient operation of the national clearance and settlement system, to promulgate rules to clarify and unify state commercial laws that provide the framework for financing securities, options, and futures positions. The Commission staff is working with legal experts, under the auspices of the American Bar Association's Section on Business Law, to explore and address these concerns. (That group, under the stewardship of Robert Haydock, expects to issue a report by May 1990.) Some examples of how state commercial laws affect the settlement process are noteworthy. First, state commercial laws preclude United States ("U.S.") depositories from engaging non-U.S. custodians to safekeep, on behalf of the U.S. depositories, securities outside the U.S. As a result, transfers and settlement of trades among U.S. broker-dealers in non-U.S. securities generally must occur outside the U.S.; this is not only risky but an impediment to efficient and liquid international securities markets. Second, notwithstanding ambiguous results under state commercial laws, banks and broker-dealers routinely use agreements to pledge

See comment 2.

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securities as a method to secure overnight financing of dealer inventories. In an effort to clarify the rights of banks in securities subject to an agreement to pledge, the New York commercial law was amended, somewhat hastily, after the October 1987 market break and raises further questions because of differences between New York law and the laws of other states. Third, state commercial laws do not provide uniform rules that spell out how lenders can obtain a perfected security interest in uncertificated securities, such as exchange-traded options. Approximately ten states still have not adopted the 1978 amendments to Article Eight and Nine of the Uniform Commercial Code (those amendments establish new and exclusive ways to perfect security interests in uncertificated securities). The lack of uniformity creates a trap for the unwary lender. We urge GAO to focus on this area so that Congress may benefit from GAO's expert views when Congress considers the Commission's legislative proposals.

See comment 3.

B. Clearing Funds and Reliance on Letters of Credit

We commend GAO for identifying, as an issue of concern, clearing organization reliance on letters of credit. As a supplement to the discussion of this issue in the Report, we note that the National Securities Clearing Corporation ("NSCC") has filed with the Commission a proposed rule change that would increase the cash and cash equivalent (e.g., U.S. Treasury securities) deposits individual members must provide NSCC and restrict letter of credit deposits to 70% of the member's clearing fund deposit requirement. This, we understand, would have the effect of increasing the cash and cash equivalent components of NSCC's clearing fund to approximately \$150 million and would reduce letters of credit to approximately 55% of NSCC's aggregate required clearing fund deposits (only 78 of NSCC's 410 members use letters of credit). In addition, NSCC has obtained a secure line of credit totalling \$200 million. These changes will give NSCC approximately \$350 million in liquid assets and will facilitate NSCC's ability to meet its payment and guarantee obligations in a timely manner. We are continuing to discuss with NSCC whether these changes are adequate to meet NSCC's reasonably anticipated payment obligations.

See comment 4.

We would urge GAO to consider not only the composition of clearing and guarantee funds at clearing organizations, but the size of those clearing funds in relation to the clearing organization's payment obligations in normal and volatile market conditions. Not only must clearing organizations have liquid assets, they must have assets sufficient to meet their payment obligations on a timely basis. We have sought to apply

See comment 5.

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this standard in our discussions with NSCC and the Options Clearing Corporation ("OCC"); we believe that both clearing organizations have taken actions to meet that standard. We urge GAO to apply the same standard in its review of other clearing organizations. For example, although the GAO report notes that the Chicago Mercantile Exchange ("CME") has increased its guarantee fund to approximately \$40 million and we understand from CME officials that they have obtained lines of credit exceeding approximately \$250 million, that may not be sufficient to meet the CME's payment obligations in volatile markets (e.g., as the Report notes, the CME delayed payments of approximately \$1.5 billion to two clearing members for more than six hours on October 20, 1987).

C. Reducing Cash Flows and Information Sharing

The Report correctly has identified two important areas for reform of clearance and settlement procedures: reducing cash flows within and across markets ^{3/} and increasing

^{3/} In its discussion of how market participants who trade across all three markets (stocks, options and futures) represent a link among the three markets, the Report states that differences among clearance and settlement systems in the three markets can sometimes hinder intermarket trading (page 20 of the Report). The Report also indicates that if capital to support intermarket strategies is limited, clearance and settlement differences between markets can hinder an intermarket strategy, especially in volatile markets. We assume that the Report does not intend to imply that clearance and settlement facilities should be designed to facilitate intermarket trading strategies based on limited capital, but rather that clearance and settlement anomalies should not unnecessarily restrict capital availability other than for prudential reasons.

In addition, the Report indicates that market participants cannot use the proceeds from their stock market activities to focus on the potential need for financing or capital pending execution of equity trades and settlement of those trades. The example, however, overstates the potential problems. If a market participant has sold futures and bought stock, he or she can borrow money using the stock as collateral, but like any other investor, cannot expect to receive funds (other than dividends regularly paid all shareholders) sufficient to meet payment obligations if
(continued...)

Now p. 17.

See comment 6.

See comment 7.

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information flows among clearing organizations that serve those markets ("information sharing"). 4/ These two areas have been a Commission priority since October 1987 and much has been done over the past two years to address them.

3/ (...continued)

the futures position increases in value and the stock position decreases in value. In this instance, differences between markets are irrelevant. On the other hand, if a market participant has bought futures and sold stock, the market participant can draw from the proceeds of the sale to satisfy payment obligations if the futures contract declines in value. Futures and equities settle on different time frames, and this may give rise to a need for financing until the equity trade has settled, usually five business days after the trade is executed.

4/ The Report separately diagrams the clearance and settlement relationship among the exchanges and clearing organizations in the stock, options, and futures markets. The figure diagramming the structure of stock clearance and settlement (page 13 of the Report) does not reflect the full scope of the NSCC's, Midwest Clearing Corporation's ("MCC") and Stock Clearing Corporation of Philadelphia's ("SCCP") relationships with the exchanges and depositories. The three clearing corporations maintain interfaces among themselves and the depositories that permit members to settle trades, wherever executed (e.g., on the New York, American, Midwest or Philadelphia Stock Exchanges, as well as over-the-counter through the National Association of Securities Dealers' ("NASD") NASDAQ system). Thus, the lines running from the exchanges and the NASD should connect to NSCC, MCC and SSCP.

The Report discusses in general the organizations involved in the clearance and settlement of futures trades (page 16 of the Report). The discussion needs to clearly spell out why so few futures clearing organizations handle most of the trading volume. With two exceptions (i.e., the Board of Trade Clearing Corporation ("BOTCC") and the Intermarket Clearing Corporation ("ICC")), futures contracts traded on an exchange are cleared at only one clearing organization, and those contracts are not fungible between exchanges or their affiliated clearing organizations. Thus, if 80% of the open interest in all futures contracts is on the CME and the Chicago Board of Trade ("CBT"), BOTCC and CME will clear 80% of futures contracts.

Now p. 12.

See comment 8.

Now p. 11.

See comment 9.

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1. Reducing Cash Flows

a. Cross-Margin

The Report discusses efforts to implement intermarket cross-margining systems. To date, the Commission and the CFTC have approved a cross-margining arrangement between OCC and ICC, ^{5/} and, on a pilot basis, a cross-margining arrangement between OCC and CME. ^{6/}

Nevertheless, there are certain impediments to the expansion of cross-margining arrangements that are not within the control of the Commission. For example, while permitting market maker participation would increase the benefits of cross-margining, our understanding is that, without further action by the CFTC regarding various rule interpretations, such an expansion is not possible. ^{7/} The Working Group recommended that the CFTC evaluate whether market maker and floor trader participation in the OCC-ICC cross-margining pilot would be consistent with its segregation rules, ^{8/} and, if not, to consider the desirability of changing those rules. As of the date of this letter, the CFTC has not interpreted or changed its rules to allow market maker and floor trader participation in either the OCC-ICC or CME-OCC cross-margining pilots. In addition, permitting bank financing in connection with cross-margining, as OCC and CME proposed, also would expand the benefits of cross-margining. The CME-OCC cross-margining pilot, however, at the CFTC's request, does not include a proposed bank financing provision pending further analysis. ^{9/}

See comment 10.

^{5/} See Securities Exchange Act Release No. 26153 (October 3, 1988), 53 FR 29567 [SEC File No. SR-OCC-86-17].

^{6/} See Securities Exchange Act Release No. 27296 (September 26, 1989), 54 FR 41195 [SEC File No. SR-OCC-89-01].

^{7/} See letter from Jean A. Webb, Secretary, CFTC, to Lori R. Burns, Assistant General Counsel, CME, dated September 26, 1989.

^{8/} See Interim Report at 21.

^{9/} See *supra*, note 6. We understand the CFTC staff expressed concern about OCC and CME relinquishing control of options to banks participating in the pledge program
(continued...)

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b. Delayed Payments

The Report notes that, in the derivative markets, delayed payments by clearing organizations to clearing members caused problems during the October 1987 market break. Specifically, the Report notes that two CME members received \$1.5 billion six hours late on October 20 and OCC clearing members received payments up to two and one-half hours late during the market break. The delays reportedly resulted from trade processing delays and the extended credit approval process necessitated by unusually large payment obligations.

The Report notes, however, that CME has taken steps to resolve the problem (e.g., improving its automated systems to reduce trade processing time and increasing its clearing fund from approximately \$4.6 million to \$35 million), but suggests that OCC has not revised its practices to correct the problem of late payment to clearing members. We do not understand the basis for GAO's conclusions.

We believe that a clearing organization's rules and settlement bank agreements should spell out clearly respective rights and obligations. As noted in the Report, we have reviewed OCC's rules and settlement bank agreements and believe those rules provide adequate clarity and certainty. OCC's rules assure members timely payment of funds owed to them by OCC. Although OCC will not pay a member if that member has not satisfied its payment obligations earlier that day, OCC remains obligated and will pay all other members on a timely basis.

We also believe it is appropriate to measure a clearing organization's ability to meet its anticipated payment obligations during normal and volatile markets (see discussion above at item I. B.). Accordingly, we have reviewed OCC's clearing fund and financing sources. Based on our review, we believe OCC's clearing fund and other financing sources are sufficient. ^{10/} For example, OCC's payment obligations to the

^{9/}(...continued)

when the value of those options might otherwise be used to offset losses incurred in liquidating a defaulting clearing member's obligations. We continue to explore with OCC, CME and CFTC staff ways to address these concerns.

^{10/} OCC has increased minimum clearing fund requirements bringing its aggregate required deposits up to \$219.2 million. See Securities Exchange Act Release No. 27410
(continued...)

See comment 11.

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five members with the largest collects during October 1987 and, more recently, on June 30, 1989, totaled less than \$80 million and \$20 million, respectively. To meet these obligations, OCC maintained, among other things, a clearing fund (that does not include letters of credit) that exceeded \$275 million and \$232 million, in October 1987 and on June 30, 1989, respectively.

Based on information contained in the Report, the CME's clearing fund during the October 1987 market break appears to have been less than \$10 million, and since has been increased to \$35 million. As indicated above, we understand the CME has obtained a \$250 million line of credit. We are not sure, however, if these resources, standing alone, are sufficient to meet the CME's payment obligations during volatile markets. As noted in the Report, on October 20, 1987, the CME owed two clearing members approximately \$1.5 billion.

c. Settlement Time-Frames

The Report notes the continued lack of coordination of settlement times across markets. On the one hand, the Chicago futures markets use a limited number of settlement banks (i.e., between four and six Chicago banks) and obtain commitments from those banks at approximately 6:40 a.m. (CST). On the other hand, OCC effects settlement through approximately 16 banks in a number of cities in several time zones at 9:00 a.m. (CST) (for payments to OCC) and at 10:00 a.m. (CST) (for payments to clearing members).

We believe OCC's arrangements facilitate the settlement process because they permit OCC clearing members to effect payments to OCC through banks with whom they maintain traditional banking relationships for all of their financing activities. Although OCC has committed to deliver morning settlement instructions to clearing banks by 7:00 a.m. (CST) instead of its current practice of delivering instructions at

10/ (...continued)

(October 31, 1989), 54 FR 46668. In addition, OCC has submitted a proposed rule change to the Commission that provides for the netting across accounts of all cash settlement obligations to be settled between it and any clearing member to one pay or collect amount. See Securities Exchange Act Release No. 27444 (November 15, 1989), 54 FR 48175. The proposal will decrease the number and amount of funds transfers considerably and thereby further decrease the likelihood that OCC would be unable to meet its settlement obligations.

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9:00 a.m. (CST), it has not done so because many clearing banks, particularly those in New York, are not ready to receive instructions by 7:00 a.m. (CST). We understand that OCC would be prepared to change its settlement time frames if the necessary systems (e.g., Federal Reserve and member bank payment systems) and personnel (particularly credit officers and support staff) were available and ready to effect payments and make credit decisions at an earlier hour. We are continuing to explore this issue with OCC and bank regulators.

d. Futures-style margin

The Report notes that the Working Group recommended exploration of futures-style margin as one of several ways to reduce intermarket cash flows. We believe the Report misstates our position on futures-style margining. In examining proposals by the CME and CBT to use futures-style margin for futures options contracts, Commission staff has explored the benefits, costs, and risks of margining securities options as if they were futures. The Commission staff is concerned that adoption of futures-style margin for securities options could change the economics of option trading by eliminating the usefulness of certain strategies, such as covered call writing, and foreclosing some market participants, such as investment companies and insurance companies, which are subject to investment restrictions. We believe that these changes could eliminate as much as 30-50% of options trading activity today. Moreover, futures-style margin, if applied to reduce initial margin deposits, could increase the ability of long option holders to leverage their investments and could permit holders to control substantial positions in securities through index options at almost no cost, possibly increasing systemic risk.

2. Information Sharing

Considerable progress has been made in efforts to improve intermarket information sharing. For example, the Securities Clearing Group ("SCG") has been formed by several clearing agencies for the purposes of communicating information on common members and to explore the development of other devices of common interest to SCG members, such as cross-lien agreements. ^{11/} In addition, at the SEC's and CFTC's urging, OCC has agreed to participate in the BOTCC's system for the

^{11/} A cross-lien agreement would permit one clearing agency to recover losses remaining after liquidating a defaulting member's account by obtaining access to the member's clearing funds at other clearing agencies.

See comment 12.

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routine exchange of pay/collect data among clearing organizations. We believe this is a positive step toward intermarket information sharing. Moreover, futures and securities clearing organizations, clearing banks and their regulators meet quarterly to discuss intermarket clearing and payment system coordination issues. Also, the Working Group meets regularly to coordinate regulatory concerns. Clearing organizations and regulators are continuing to pursue these initiatives with a view toward increased information sharing and reduced cash flows.

The Report correctly identifies that the Working Group urged NSCC participation in the BOTCC's pay/collect information sharing system and that to date NSCC is not participating in that system. We believe that NSCC has raised substantial concerns that GAO should consider more carefully. Those concerns include BOTCC access to confidential information about clearing members; the possibility that futures clearing organizations, including the BOTCC, may misinterpret pay/collect data and take inappropriate action based on that information; differences in settlement time frames between NSCC and derivative markets (NSCC effects money settlement in next-day funds during the late afternoon, derivative markets effect settlement in the early morning hours the next day); the limited number of NSCC participants that are also members of futures clearing organizations; and other information that is more useful to clearing organizations than the size of pay/collect obligations.

We believe it is important for all clearing organizations to know the business mix of their members and the professional market participants whose trading activity is cleared through those members; where and through whom those members conduct business in other markets (and related clearing organizations); whether those firms are subject to greater than normal surveillance; and whether those firms have failed to meet their obligations in a timely manner. To this end, the securities clearing agencies and OCC, through SCG, have established a common membership list, which now includes membership data from the futures clearing organizations. In addition, SCG members have agreed to notify each other concerning common members who are placed on surveillance or who default on their obligations, and we have encouraged SCG to discuss with futures clearing organizations ways to share information concerning common intermarket clearing members. We understand SCG plans to meet with futures clearing organizations within the next few months and we will use our best efforts to encourage progress in this area.

See comment 13.

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II. Other Matters

A. Trade Matching and Trade Processing Systems

The Report gives the impression that stock and options clearing organizations had difficulties matching trades during the October 1987 market break (pages 23-24 of the Report). In fact, trade matching systems worked well during the October 1987 market break and were able to process trade data without incident. The problem lay in the ability of some execution systems to execute trades on a timely basis or the ability of clearing members to submit trade data to clearing corporations in a timely manner. ^{12/}

The Report states that trade processing problems during the October 1987 market break caused uncertainty among market participants and caused them to question the integrity of the markets (page 31 of the Report). The tone of this statement is too strong. Although some clearing organizations were slow to determine clearing members' settlement obligations, much of the delay can be attributed to the problems on the trade execution side and the inability of clearing members to input trade information into the clearing organizations' systems. In addition, although OCC delayed in paying its members on the morning of October 20, 1987, we are not aware of any general perception that OCC might be unable to make those payments. Therefore, while some market participants may have had some uncertainty as to the timing of the clearing organizations' trade processing, at least in the securities and options areas the integrity of the markets was not questioned.

The discussion regarding trade matching and reconciliation systems includes the Working Group's recommendation for same day comparison but omits the Group of Thirty recommendation that equities move to overnight comparison (page 34 of the Report). The Commission has endorsed the Group of Thirty's recommendation. To this end, we note that currently over 95% of all New York Stock Exchange and American Stock Exchange trades and over 90% of over-the-counter trades are now compared before markets open on the morning after trade date. We believe that the Group of Thirty's recommendation, while noted in the Introduction, should also be referenced in this discussion.

^{12/} See Division of Market Regulation, The October 1987 Market Break (Feb. 1988) ch. 10 at 6-9.

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B. Clearing Organization Risk Management Systems

The conclusion and recommendations section of Chapter Three focuses on the need for further change in the equity clearance and settlement system, but does not address the need for continued improvements in futures clearance and settlement (pages 54-56 of the Report). We believe that, in light of the discussion in Chapter Three, there is a demonstrated need for continued improvements in the settlement systems in both the equities and futures markets.

* * *

If this Report is issued, we request that a copy of this letter be appended to the Report. Again, thank you for the opportunity to comment on the Report.

Sincerely,



Richard G. Ketchum
Director

Now pp. 37-38.

See comment 17.

The following are GAO's comments on the Securities and Exchange Commission's letter dated January 5, 1990.

GAO Comments

1. We support SEC-sponsored legislation that directs SEC and CFTC to foster the development of coordinated and linked intermarket clearance and settlement systems. We believe the legislation, if enacted, will support our recommendations. The expertise of both the SEC and CFTC are needed to establish a timetable for industry action and implement Working Group initiatives.
2. These issues are addressed on pp. 45-49 of the report.
3. We agree that a uniform set of rules should be established concerning how a bank as a creditor establishes a claim to uncertificated securities. We support SEC rule-making authority that would preempt state laws on perfecting a security interest.
4. The text has been amended on p. 34 to take account of these recent rule filings with SEC.
5. We agree that clearing organizations should have liquid assets sufficient to meet their payment obligations on a timely basis. Although intraday margin pays and collects should diminish the size of any single futures payment, original margin deposits are usually sufficient to meet the payment obligations of futures clearing organizations. See also p. 6 of CFTC's comment letter where this matter is further discussed.
6. We concur that clearance and settlement facilities should not be designed to facilitate intermarket trading strategies based on limited capital and that clearance and settlement anomalies should not unnecessarily restrict capital availability other than for prudential reasons.
7. The text has been changed on p. 17 to indicate that market participants sometimes borrow against the value of their stock gains to cover losses in the options or futures markets.
8. The text has been changed on p. 11 to make this point. We have adjusted the title of figure 1 accordingly. The primary relationships in stock clearance and settlement are as diagrammed in figure 1.

9. The text of chapter 1 indicates that most futures exchanges are affiliated with a single clearing organization and that 80 percent of the futures trade volume is cleared by BOTCC and CME.

10. We agree with the SEC that CFTC should formally evaluate whether or not market makers' and floor traders' participation in the OCC-ICC cross-margining pilot is consistent with segregation rules and, if not consistent, the desirability of changing segregation rules.

11. The text in chapter 4 on p. 44 has been altered to indicate that OCC has submitted a rule change to SEC for review and approval to correct the problems of late payments to clearing members.

12. The text has been altered on pp. 47-48 to reflect SEC concern on futures-style margining of changing the economics of option trading and possibly increasing leverage and risk.

13. See pp. 38-39 of this report where information sharing issues are discussed.

14. The discussion in the report is about trade processing, which includes the submission of trade data by clearing members, not just trade matching. We have altered the text on pp. 25-27 to make this point clearer. We agree that the primary problems were not the initial matching process, but the late submission of data to that process and inadequate reconciliation of trades that did not match on the first attempt.

15. Reports of uncertainty have been attributed to the Brady Report, and the text discussing loss of confidence in the markets has been revised. See p. 25 of the report.

16. Efforts to achieve same-day comparison in response to the Working Group recommendation will also achieve overnight comparison in response to the Group of Thirty recommendation. The text has been altered on p. 26 to note the Group of Thirty recommendation.

17. The text has been altered on p. 38 to indicate that federal regulators of stock, options, and futures markets need to strengthen their respective clearance and settlement systems by further reducing or mitigating known risks.

Comments From the Commodity Futures Trading Commission

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



DIVISION OF
TRADING AND MARKETS

COMMODITY FUTURES TRADING COMMISSION

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January 29, 1990

Mr. Richard Fogel
Assistant Comptroller General
General Government Programs
General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Re: Report on Clearance and Settlement Reform

Dear Mr. Fogel:

The Commission has authorized me to comment on the report ("Report") of the General Accounting Office ("GAO") concerning clearance and settlement reform in the equities, futures and options markets. GAO endorses the recommendations of the President's Working Group on Financial Markets ("Working Group") and the Group of Thirty. Specifically, GAO recommends that the Working Group take an active role in appropriately implementing: (1) a routine intermarket information sharing system to assess intermarket risks posed by joint members; and (2) studies exploring ways to lessen intermarket cash flow pressures and to simplify intermarket clearing without diminishing safeguards against financial risk.

The Commission wholeheartedly concurs that effective clearance and settlement processes are vital to the proper functioning of the financial markets. The Commission has worked continuously since the October 1987 market break with other regulatory bodies and self-regulatory organizations to improve those processes and thus supports the general recommendations of the GAO.

We appreciated the opportunity to work with members of your staff in explaining the steps taken by the Commission and the futures markets to improve clearance and settlement systems. We believe that certain aspects of the Report can benefit from additional information. Our comments on the Report are set forth below.

A. Information Sharing

Information sharing has long been a Commission priority. In financial rule enforcement reviews since 1985, Commission staff

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Trading Commission

Mr. Richard Fogel
Page 2

has recommended that exchanges explore means of routinely obtaining information on members with exposures in more than one market. The Board of Trade Clearing Corporation ("BTCC") pay and collect data-sharing system was well along in development prior to the October 1987 market break, and the Commission's large trader position database has been in place since 1937.

Routine sharing among futures clearing organizations using the BTCC data-sharing system went on line in October 1988, and has proven to be an invaluable tool. The BTCC developed this system at its own expense and operates it on a costs only basis. The Commission has sought to obtain participation by securities clearing organizations in this system for approximately two years. The Options Clearing Corporation ("OCC") began to participate in October 1989, after signing an agreement to participate in May 1988. The National Securities Clearing Corporation ("NSCC") continues to decline to participate.

The Commission has also been developing a position database, which would use data from the Commission's large trader reporting system, that would include information about positions of clearing firms across futures and futures options markets. This system should be operational in mid-1990. While the system will initially use data concerning futures positions, this system could incorporate securities data as well and the Commission has offered OCC the opportunity to participate.

OCC and NSCC have expressed concerns about protection of the confidentiality of the data in the BTCC system. Their concerns, however, seem unwarranted based on actual experience with the system and the extensive confidentiality provisions agreed to by its users. BTCC officials advise that as an operational matter each participating clearing organization has access to the processed pay and collect and surplus and deficit information on its own members within minutes of any other participant. The BTCC's computer center receives the data directly from various clearing organizations' computer centers. This information is then processed and stored in the BTCC's computer disk where it is accessible at precisely the same moment by all clearing organizations with terminals linked directly to the BTCC's computer center. Thus, any clearing organization with a terminal can access the information at approximately 5:30 a.m. each day.

The suggestion that the BTCC has earlier access to this information is erroneous. In addition, OCC's claims that the BTCC system would encourage a "race to the bank" by multiple clearing organizations seeking to receive security in preference to each other seem inconsistent with OCC's decision not to synchronize its daily settlements with the earlier settlements of the Chicago Mercantile Exchange ("CME") and BTCC. Despite recommendations of the Working Group for harmonization of settlement timeframes, OCC continues to collect its settlements at approximately 9:00 a.m.

See comment 1.

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each morning and pays at 10:00 a.m., although the CME and BTCC collect and pay settlements before the markets open at 7:20 a.m. In connection with the CME/OCC cross margining program, the Commission has suggested that OCC collect and pay out funds contemporaneously. This would facilitate netting procedures at common banks and assure that cross-margining actually results in a reduction in the number of payments made.

The OCC's statements about the operation of the BTCC information sharing system are incorrect. If OCC's allegations are to be published with the Report, BTCC should be provided the opportunity to respond to them.

B. Timely Payments

The Report contains a recommendation on page 76 that the Securities and Exchange Commission ("SEC") and the Commission ensure that appropriate mechanisms are in place to assure that payments required by clearing members and clearing organizations are made within established timeframes. We believe that the objectives underlying this recommendation have largely been achieved. Intra-day variation payments and collections have been made routine since October 1987 and CME's settlement software can accommodate payments made with securities as well as cash. Such enhancements have largely solved any problems which might have existed regarding timely payments. Indeed, market participants have informed us that making routine intra-day variation payments and collections by clearing members is one of the single greatest improvements in clearance and settlement processes since October 1987.

Another improvement in this area is the revision of settlement agreements between clearing organizations and banks. As of October 21, 1988, the BTCC, the CME and each of the four Chicago settlement banks ^{1/} entered into uniform settlement agreements which are intended to clearly specify the obligations of the parties with respect to the honoring of settlement instructions received from the clearing organization and the timing and finality of payments between clearing members and the clearing organizations. The agreements require each clearing bank either to pay member obligations through irrevocable credits to the respective clearing organization's account or to inform the respective organization that the payment cannot be processed by a time certain before the opening of regular trading hours.

^{1/} The CME entered into agreements to add two settlement banks in New York in July 1989.

See comment 2.

Now p. 50.

See comment 3.

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The Report makes only passing reference to these developments in discussing payments to clearing members by the CME on October 20, 1987. The CME opened for trading on time on that date and all clearing members were paid within the legal time-frame, that is in "same day funds," although it is true that payments to two clearing members occurred later than usual. The Commission's Division of Trading and Markets addressed the circumstances related to this matter on pages 55-56 of its Follow-up Report on Financial Oversight of Stock Index Futures Markets During October 1987, January 6, 1988 ("Follow-up Report"). The problem was largely caused by the fact that settlement banks did not receive accurate instruction sheets at the usual hour because certain non-cash intra-day variation payments made on October 19, 1987 were not accommodated by existing software and therefore were not reflected in the October 20 variation calculations. Intra-day variation payments and collections have since been made routine, the applicable software has been modified, and this problem has not recurred.

To assure effective, stable operation of clearance and settlement systems, receipt of final, irrevocable payment commitments is the critical fact. When payment commitments have finality and those commitments are honored through payment of same day funds, as occurred on October 20, market participants should have no cause to question the viability of the clearance and settlement system. To the extent that market participants are encouraged to believe that isolated delays in their receipt of funds constitute a basis for questioning the soundness of the system, they may be encouraged to take precautionary measures, such as delaying their own payments to customers or clearing organizations, which could have adverse impacts upon the market as a whole. In addition, we do not believe that any evidence has been developed that the incident created a general lack of confidence in the futures markets, as the late payments only came to public light well after the actual event. 2/

See comment 5.

2/ The SEC comment letter also makes repeated reference to this incident, implying that the CME payments referred to may have been delayed because CME was unable to make such payments and questioning whether the CME has adequate resources to weather future market crises. The SEC fails to note, however, that in addition to the fact that all payments were made by the CME on October 20 in same day funds, standing original margin on deposit at the CME exceeded by billions of dollars the variation margin payments made during October 1987. See Table 5, Follow-up Report at page 66(a). Margin is the first line of defense in a volatile market and while we have encouraged efforts by

See comment 6.

(Footnote Continued)

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The Report states that settlement bank payment confirmations were over an hour late for thirteen clearing members. The CME has advised Commission staff that only one such confirmation was over an hour late. Follow-up Report at 44. All confirmations were received before the market opened.

C. Risk Assessment

Existing risk assessment tools are referred to at pages 5 and 50 of the Report. We believe that a complete assessment of a firm's financial risk would require development of mechanisms whereby clearing organizations have access not only to data on regulated markets such as securities, stock options and futures, but to data on unregulated activities such as foreign exchange transactions and bridge financing as well. Both the CFTC and SEC have been seeking legislation addressed to obtaining additional information related to assessing the exposures of holding company systems.

D. Reduction of Cash Flows

We are concerned that there is an assumption on pages 22-23 of the Report that preservation of intermarket strategies is more important than prudential concerns. Margin and capital requirements are intended to reduce systemic financial risk, and implementation of margining systems which result in symmetric cash flows may ease pressures on third party lenders. The feasibility of such measures should be assessed and regulators should determine whether it would be sound public policy to adopt futures-style margining systems. Such a system need not be mandated for markets in which it would not be appropriate or desired. In any event, the overall health and preservation of the financial markets should take precedence over the implementation of any

(Footnote Continued)

the CME and other clearing organizations to augment and make more liquid their guarantee funds, such funds should not be considered as a substitute for prudential margin levels. Such levels proved adequate during October 1987 and again in October 1989 under very stressful conditions. Suggestions that the CME is not financially able to meet its obligations under volatile market conditions cannot be supported by an objective assessment of CME's actions, contingency plans and capabilities. The CME's payment record on October 20, 1987 might be usefully contrasted with that of the OCC which, as the Report notes, made late payments to all of its clearing members on that date, even though OCC's payments are due later in the trading day than CME's payments because of OCC's midmorning settlement.

See comment 7.

Now pp. 4 and 29.

See comment 8.

Now p. 17.

See comment 9.

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particular trading strategy. We believe that the SEC comment letter (footnote 4 at page 3) makes essentially the same point.

E. Clearing Funds and Use of Letters of Credit

Commission staff supports the GAO's recommendation that the SEC and CFTC assess the adequacy of clearing organizations' use of letters of credit in their guarantee funds. Futures clearing organizations have made improvements in this area, including the CME's elimination of the use of letters of credit in its guarantee fund and increases in the size of its guarantee fund. The CME has also modified the basis on which it calculates guarantee deposit requirements from a flat rate to a risk-based rate based upon average daily margin requirements for the clearing firm. We will continue to encourage and facilitate further enhancements of this nature.

See comment 10.

The Report would be improved by inclusion of a discussion of the different functions performed by equities clearing guarantee funds and futures clearing guarantee funds. When these differences are analyzed, equities clearing guarantee funds appear more comparable to initial margin deposits in the futures markets than to futures clearing guarantee funds, which provide a financial integrity cushion in addition to initial margin deposits. The NSCC, for example, does not require initial margin deposits. NSCC clearing firms are required to make deposits to NSCC's clearing fund based upon a formula that reflects the firm's settlement exposure calculated on a daily basis but generally collected only on a monthly basis. By contrast, futures clearing organizations calculate and collect margin based upon settlement exposure at least on a daily basis, such that clearing member margin deposits accurately reflect the risk of their outstanding positions. Futures clearing organizations maintain guarantee funds that stand as an additional protection, in the event that margin deposits of a failed clearing firm prove inadequate to cover a default.

The SEC's comments concerning the possible insufficiency of the CME guarantee fund (\$36 million in cash and U.S. Treasury securities, supplemented by over \$250 million in lines of credit) in periods of volatile markets appear to equate futures guarantee funds, which augment protection afforded by margin deposits, with those of equities clearing organizations, which may, in effect, substitute for margin deposits. For example, the SEC expresses concern that the CME guarantee fund would be inadequate in the context of payment obligations of the magnitude of \$1.5 billion total payments owed two firms on October 20, 1987. However, on October 20, the CME held original margin deposits of over \$4 billion, in addition to its guarantee fund.

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In reviewing the adequacy of clearing guarantee funds, the length of the settlement cycle is also a key consideration. As the Group of Thirty clearance and settlement study and other analyses of settlement systems have concluded, risk increases with the length of the settlement period. The shorter the period between trade execution and settlement, the lower the risk of default. Consequently, the five-day or greater settlement period in the equities markets entails a far greater risk of default than the one-day settlement period of the futures markets, particularly when accompanied by the now routine intra-day collection of margin in the futures markets. It may be constructive to review whether the security available to the equities markets' clearing organizations, whether characterized as margin or guarantee funds, is adequate to address the risks of the five-day equity settlement cycle.

F. Trade Processing

The first sentence of the first full paragraph on page 25 of the Report states that "[p]rocessing of information about trades and payment was a problem in the stock, options, and futures markets." There is also the implication in Chapter 2, and particularly at the top of page 33, that there were trade processing problems in the futures markets. There was no evidence of any problems in the futures markets with respect to trade processing and the text of the Report only discusses problems in the securities market and at the OCC. Therefore, we believe all such references to trade processing problems in the futures markets should be removed from the Report.

G. Other Matters

The conclusion on page 76 of the Report that recommendations designed to reduce cash demands "could rectify problems which pose great risks to clearance and settlement systems" overstates the situation. It should be stated that potentially such recommendations could result in measures to rectify or reduce those problems. This raises a more general point, to which we have previously alluded. The Report appears to focus on liquidity issues to a greater extent than it does on issues of financial integrity and risk management. There is often a trade-off between liquidity and protection against risk. The Report consistently emphasizes liquidity over solvency as a paramount objective.

We note that on page 6 of the SEC comment letter, the SEC appears to be urging the Commission to permit bank financing in connection with the CME/OCC cross-margining program as a way to expand the benefits of cross-margining. Banks have expressed concerns to us regarding such a pledge program and the Commission is considering the interests of all parties from a public policy and regulatory perspective. We further note that we have

See comment 11.

Now p. 25.

See comment 12.

Now p. 50.

See comment 13.

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requested OCC to provide an analysis of the bankruptcy implications if cross-margining were expanded.

We further wish to note that the GAO is correct in recognizing the Commission's authority over futures clearing organizations on page 20 of the Report. The Commission's authority in this area is clearly established and has been vigorously exercised. See, e.g., Board of Trade Clearing Corporation v. United States, [1977-1980 Transfer Binder] Comm. Fut. L. Rep. (CCH) ¶ 20,534 (D.D.C. Jan. 11, 1978), aff'd, No. 78-1263 (D.C. Cir. 1979). Thus, the suggestions of OCC and NSCC that the Commission's authority over futures clearing organizations is not established and that the absence of such authority impedes coordination of clearance and settlement procedures among futures, equities and option markets, are erroneous.

The largest and most sudden market adjustment since October 1987 occurred during the period of October 13-16, 1989 and the clearance and settlement systems performed in a quite stable manner. The latter period is apparently outside of the scope of the Report, which is unfortunate because it presented a nearly ideal context in which to measure the adequacy of changes in clearance and settlement systems and the regulation thereof since October 1987.

We thank you again for the opportunity to comment on the Report and reiterate our support for its recommendations. When the Report is issued, please include a copy of this letter as an Appendix thereto.

Very truly yours,

Andrea M. Corcoran/see

Andrea M. Corcoran
Director

Now p. 16.

See comment 14.

The following are GAO's comments on the Commodity Futures Trading Commission's letter dated January 29, 1990.

GAO Comments

1. Comments on the BOTCC information sharing system are discussed in detail on pp. 37-38 of the report.
2. Because soliciting additional comments would delay issuance of the report, we have decided not to allow BOTCC an opportunity to respond.
3. Although we acknowledge that improvements made in intraday pays and collects and revised settlement agreements have improved the timeliness of payments, the adequacy of available clearing member credit to support timely payment is not clear. Given the uncertain nature of clearing member credit arrangements, timely payment by clearing members continues to be an open question.
4. Improvements in intraday variation payments and collections and in settlement agreements are discussed in detail on p. 42.
5. We agree that isolated delays in the receipt of funds by a clearing member from a clearing organization should not constitute a basis for the clearing member to delay payments to customers or clearing organizations. In addition, we do not take a position on whether there was or was not a general loss of confidence in the clearance and settlement systems on October 19 and 20, 1987. We attribute reports concerning lack of confidence in the clearance and settlement system to the Brady Report.
6. We agree that original margin on deposit at CME was adequate to meet variation margin payments to clearing members.
7. We have altered the text on p. 41 to indicate that 13 settlement bank confirmations were between 30 minutes and 1 hour late. Four confirmations were over 1 hour late.
8. We agree that this is an interesting and important issue deserving further study. However, it is not within the stock, options, and futures market scope of this report.
9. We concur that clearance and settlement facilities should not be designed to facilitate intermarket trading strategies based on limited

capital and that clearance and settlement anomalies should not unnecessarily restrict capital availability other than for prudential reasons.

10. While this distinction is interesting, it is not necessary to include it to understand the changes made by clearing organizations to their guarantee funds since the October 19, 1987, market decline.

11. We agree that all clearing organizations should continually reassess whether their risk-management techniques and funds are adequate for their settlement cycle.

12. Chapter 2 has been altered to focus exclusively on trade processing improvements in securities markets. It does not contain a discussion of trade processing problems in futures markets.

13. We agree that liquidity should not be improved at the expense of solvency. We have amended our second general recommendation to note this concern. We say that studies exploring ways to improve liquidity and simplify intermarket clearing should be completed and acted upon without diminishing safeguards against financial risk. See our discussion of the issue on p. 51 of the report.

14. CFTC's authority over futures clearing organizations is discussed on p. 21 of the report.

Comments From the National Securities Clearing Corporation

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



National Securities Clearing Corporation

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Robert J. Woldow
Executive Vice President
and General Counsel

December 22, 1989

Richard L. Fogel
Assistant Comptroller General
General Government Division
United States General
Accounting Office
Washington, D.C. 20548

Re: Clearance and Settlement Reform:
The Stock, Options, and Futures
Markets Are Still at Risk. Draft
Dated November 21, 1989.

Dear Mr. Fogel:

National Securities Clearing Corporation (NSCC), is pleased to submit the following comments regarding the latest draft of the above captioned General Accounting Office (GAO) report evaluating the sufficiency of industry and federal regulator actions in response to clearance and settlement recommendations made by the President's Working Group on Financial Markets after the October 1987 stock market crash. As a general commentary, this draft is a factual improvement over previous drafts which we have had the privilege of reviewing. However, as noted below, several factual inaccuracies remain, and should be corrected, and NSCC is still concerned that the continued use of such phrases as "many clearing organizations" or "some clearing organizations" when referring to derivative market clearing organizations who experienced problems, casts a cloud over the stock clearing organizations in general and NSCC in particular, who did not experience the problems referenced. Further, we have noted below events which have transpired with which you may wish to update your report.

Executive Summary - Principal Findings, page 5. You state in the second paragraph, line 9 that:

To obtain complete assessments of a firm's exposure, clearing organizations would need to share information among their counterparties in other markets, but there has been limited progress in this area. (emphasis added)

See comment 1.

Now p. 4.

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Page 2.

See comment 2.

We know the GAO is aware that corporate securities, options and index futures activity is for many of the thirty plus firms, you reference as participating in all three markets, only part of their overall activity. Commercial paper, foreign equity and debt and foreign exchange activity are examples of other such activity. Would not the reader be better served if you were less broad in your findings and simply stated "To obtain an expanded view ...".

Now p. 11.

Chapter 1 - Various Organizations are Involved in the Clearance and Settlement Process. In the second full paragraph on page 12, you state that:

Those exercising their options can do so through one of the three stock clearing organizations and their associated depositories.

See comment 3.

In fact, firms exercising their options do so through The Options Clearing Corporation (OCC). OCC then assigns the exercised options to counterparty members of OCC and transmits paired instructions for the movement of the underlying securities to one of the three stock clearing organizations. When the stock clearing organization incorporates these security deliver and receive instructions into their systems, they become guaranteed by the stock clearing entity. While actual movement by book-entry of the underlying securities may take place at the depository pursuant to instructions from the stock clearing organization, such may not be required if the deliver and receive instructions net with existing equal and opposite receive and deliver obligations at the stock clearing organizations.

Now p. 15.

Chapter 1 - Federal Regulation of Clearance and Settlement Systems. In the first sentence of the beginning paragraph of this section on page 17 you state that:

Because of the potential impact that a poorly operating system could have, clearance and settlement regulation is the responsibility of the Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC), and the Federal Reserve System (FRS).

This seems to imply that regulation was imposed to either correct poorly operating systems or prevent operating systems from deteriorating. Rather, at least with respect to securities, the following findings of Congress were codified as part of the 1975 Acts Amendments to justify direct SEC oversight over securities clearing agencies (Sec. 17A.(a)(1)):

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Page 3.

- (A) The prompt and accurate clearance and settlement of securities transactions, including the transfer of record ownership and the safeguarding of securities and funds related thereto, are necessary for the protection of investors and persons facilitating transactions by and acting on behalf of investors.
- (B) Inefficient procedures for clearance and settlement impose unnecessary costs on investors and persons facilitating by and acting on behalf of investors.
- (C) New data processing and communications techniques create the opportunity for more efficient, effective, and safe procedures for clearance and settlement.
- (D) The linking of all clearance and settlement facilities and the development of uniform standards and procedures for clearance and settlement will reduce unnecessary costs and increase the protection of investors and persons facilitating transactions by and acting on behalf of investors.

In this last paragraph of the same section of your report appearing on page 18, you state that:

In the stock, options, and futures markets, the structure of regulation is such that self-regulatory organizations (SRO)--the clearing organizations and the exchanges--are the primary regulators and the federal regulators oversee the actions of the SROs to determine whether or not they are functioning in accordance with regulations and the law.

While you are correct that in the stock and options markets, clearing organizations and exchanges, as self-regulatory organizations (SRO), are the first line regulators and the federal regulators oversee their actions, the use of the term "self-regulatory organization" is one, at least with respect to clearing organizations, that we thought was distinct to the securities laws. We understood regulation of futures clearing entities, whether separate corporations or divisions of futures exchanges, was subject to indirect regulation by the CFTC through the futures exchanges themselves. We understood that former SEC Chairman Ruder had suggested that Congress grant specific direct oversight to the CFTC for commodities clearing organizations to place such at an equal regulatory level with securities clearing organizations.

Now p. 15.

See comment 4.

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Now p. 16.

This distinction can be seen under "The SEC Regulates Stock and Stock Options Clearance and Settlement", on page 18 where you state that:

Through rule reviews, the SEC examines proposed clearing agency rules for their consistency with the Securities [and] Exchange Act and regulations issued by the SEC. (emphasis added)

Now p. 16.

and, in your section "CFTC Regulates Futures Clearance and Settlement", on page 19 where you state that:

In rule reviews, CFTC examines proposed exchange and clearing organizations rules for consistency with CFTC guidance. (emphasis added)

Now pp. 18-19.

Chapter 1 - The Presidential Working Group Identified Problems. In the last sentence in the text on page 23 and continuing on to page 24, you state that:

See comment 5.

Trade data entry systems of member firms, exchanges, and matching systems were not always able to process trade data quickly and accurately. For example, the percentage of stock trades that did not match on price or quantity doubled during the crash.

Your statement implies that the "matching system" at NSCC was at fault, while in reality, this was not the case. Where both sides were correctly and timely submitted, such trades matched. As to the increase in the uncomparison rate, while part of it was caused by erroneous submissions, the primary reason for this increase was the lack of submission to NSCC of one side to the transaction.

Now p. 25.

Chapter 2 - TRADE PROCESSING SYSTEMS ARE LESS VULNERABLE - The Stock Markets Experienced Problems in Their Trade Processing Systems. In the first sentence of this section beginning on page 31, you indicate that:

See comment 6.

Stock market clearing organizations . . . had trade processing problems during the crash but are in the process of improving their systems.

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Page 5.

As indicated in prior discussions and written comments, we disagree with your statement that stock market clearing organizations had trade processing problems. True the market places had certain of their automated trading systems experience delays. True some member firms experienced problems in forwarding trading information to NSCC. And, true some trade information which did not match, because either no counter-side information was submitted or counter-party information differed, was not timely reconciled by member firms. However, the trade matching systems of NSCC performed exceptionally well. And, matched trades were efficiently netted and the resulting netted obligations completed settlement at rates in excess of the then year-to-date average.

The major problem continually referred to, both in this section and in your section "Trade Matching and Reconciliation Systems are Being Improved", was the timely reconciliation problem noted above. This is a procedure which takes place after our matching system reports back items to a submitting firm for which no counter-side match was received (uncompared trades) or items reported by NSCC to a firm which had not submitted matching data (advisories). Once the firms reconcile these unmatched items, they resubmit them to NSCC for processing. All three marketplaces undertook steps to facilitate the members' reconciliation process. The status of such marketplace steps is described in Attachment A. In addition, in order to afford members an earlier opportunity to receive information, and take corrective action with respect to those items which do not initially match, NSCC accelerated its submission and output requirements for its members. The status of these NSCC steps is also described in the Attachment.

We would hope that you incorporate these status descriptions in your report.

Chapter 2 - Conclusion. The last sentence of this paragraph on page 40 states:

These efforts should facilitate attempts to shorten the stock settlement cycle as recommended by the Group of Thirty.

See p. 26.

Now p. 28.

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Page 6.

See comment 7.

While this statement is correct, you do not provide the reader with the basis upon which you render this conclusion. As discussed with you previously, aside from the problems of the U.S. mail which delays customer deliveries of money and/or securities, it has always been recognized that the current T+5 settlement cycle could not be shortened until unresolved trades could be reconciled and then included within the normal processing stream for settlement. Earlier trade submission requirements for matching and an automated reconciliation facility enhance the potential for earlier settlement from a systems perspective. As, however, the U.S. G-30 Working Group indicated in their November 22, 1989 letter to the Street, there are many more significant issues to T+3 settlement that need to be addressed.

Now pp. 31-32.

Chapter 3 - PROGRESS MADE IN CHANGING CLEARING ORGANIZATION RISK MANAGEMENT SYSTEMS HAS BEEN SLOW - NSCC has Maintained Current Capital Requirements. On page 45 in the last sentence of the first full paragraph under this heading, you state that:

Since the market break, NSCC has maintained its member capital requirement of \$75,000, which is higher than the \$25,000 minimum established by the SEC.

See comment 8.

NSCC does not require \$75,000 in capital from its members. NSCC requires that its members maintain \$50,000 in capital in excess of whatever the member's capital requirement is as established by the SEC and the member's Designated Examining Authority (DEA). Thus, if the Commission only required a firm to maintain \$25,000 in capital, then NSCC would require the firm to have at least \$75,000 in capital. The SEC Capital Rules, however, vary by the type of business in which a member is active. Thus, if a firm is required by the SEC and/or its DEA to maintain \$1 million in capital, the firm's NSCC capital requirement would be \$1,050,000.

Chapter 3 - Guarantee Funds Help Provide Market Integrity. In the second sentence of the first full paragraph under this heading, you indicate that:

A default occurs when a member fails to pay for losses it incurred in the marketplace.

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Page 7.

While we cannot speak for the options or futures markets, a default at NSCC occurs when a member fails to pay NSCC its money balance due for the net of securities delivered to it by NSCC and the securities it delivered to NSCC. This is a major difference between the equities and derivative markets where the former is payment for the receipt of an actual instrument as compared to payments for market movements, the profits or losses referred to in your above quoted sentence.

Chapter 3 - Clearing Organizations Reviewed their Guarantee Funds. Please update your description on page 48 regarding NSCC to include the following two events:

- o On October 25, 1989 NSCC filed SR-NSCC-89-16 with the Securities and Exchange Commission. The purpose of the proposed rule change is to modify the amount of a Member's Clearing Fund Required Deposit that may be collateralized by letters of credit. Specifically, the rule change will increase the minimum cash contribution for those Members who use letters of credit from \$50,000 to the greater of \$50,000 or 10% of their Clearing Fund Required Deposit, up to a maximum of \$1,000,000. In addition, the rule change will provide that only 70% of a Member's Required Deposit may be collateralized with letters of credit. The intended effect of the rule change is to increase the liquidity of the Clearing Fund and limit exposure to NSCC of any unusual risk from the reliance on letters of credit.

This is a goal that the Commission has endorsed to insure the liquidity of the clearing system in the event of a major Member insolvency, catastrophic loss, or a major settlement suspense.

The net effect of this rule change, if approved by the SEC, will be to increase, based on current estimates, the current cash and government obligations in the Clearing Fund today from \$100 to \$150 million. The total fund today is in excess of \$400 million.

- o On December 7, 1989, the Board of Directors of NSCC unanimously voted to accept a commitment letter from Bankers Trust Company which would provide NSCC with a committed line of credit of \$200 million.

See comment 9.

Now pp. 33-34.

See comment 10.

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The net impact of these above two actions converts the NSCC Clearing Fund, which today is composed of only 25% of what could be truly called liquid assets, into a Clearing Fund which is over 75% liquid.

Now p. 37.

Chapter 3 - The Securities Clearing Group is Improving Information Sharing. In the first sentence on page 53 under this heading, your report states that:

According to SEC, the stock and options clearing organizations created the Securities Clearing Group (SCG) in 1988 in an effort to establish a formal information-sharing system.

See comment 11.

While not wishing to be in conflict with what the SEC may have advised you was the purpose in forming the SCG in 1988, NSCC would wish to point out that it was NSCC who spear-headed the formation of this group following the Market Break of 1987, and it is NSCC today who currently chairs this organization. Further, information sharing is but one of the many goals of this group most of which appear in your report under this section on page 54. And, the SCG is not planning to explore these various areas but is in fact doing significant work in the creation of a central data base and several of the other items listed.

Now p. 37.

Now p. 37.

Chapter 3 - Conclusions. In the first paragraph on page 54 under this heading, you state that:

Although federal regulators and SROs have made progress in implementing intra-market or market specific recommendations, they need to do more to reduce risk by strengthening the stock clearance and settlement system.

See comment 12.

We respectfully suggest again that the stock clearance and settlement system per se worked, in 1987 and works today, exceptionally well. Perhaps, what you had intended to say is that federal regulators and SROs need to strengthen the stock clearance and settlement system by further reducing or mitigating known risks.

See comment 13.

Chapter 4 - CREDIT AND LATE PAYMENT PROBLEMS IN THE STOCK, OPTIONS, AND FUTURES MARKETS HAVE NOT BEEN FULLY RESOLVED - Stock, Options and Futures Markets Rely on Banks for Timely Payment and Credit. In the first sentence, you indicate that:

Stock . . . market participants rely on commercial banks to pay and collect funds for their market transactions.

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Page 9.

The word "Stock" should be omitted. This is a description of the payment system for options and futures.

Chapter 4 - Some Clearing Members were Late Paying their Clearing Organizations during the Crash. In the second sentence of this section on page 59, you state that:

In addition, three NSCC clearing members, one which was also an OCC clearing member, defaulted or withdrew from the clearing organization or depository membership.

While this sentence is factually correct, without saying more it could lead the reader to perceive that there was a major settlement crisis at NSCC. As you have been advised, two of the three members were either in a credit position or had clearing fund deposits to cover their settlement debits. Only one of the members defaulted and the net total loss to NSCC who guaranteed over \$126 million worth of stock transactions for this firm was less than \$400,000. A small amount when one realized that NSCC had over \$440 million worth of Clearing Fund backing it up.

Chapter 4 - Proposals to Reduce Cash Demands on Clearing Members with Intermarket Positions have not Led to Reform. On page 65 under this heading, in the paragraph beginning with "Exploring other arrangements between clearing organizations...", you omit the fact that each of the stock clearing organizations today have either, combined and netted settlements between themselves and their affiliate depositories, or established cross-endorsement programs which have the same effect. This fact should also be referenced in the last paragraph on page 67. Further, your last sentence of the paragraph on page 65 states that:

According to BOTCC officials, netting already exists when a clearing member uses the same bank for settlement activity at different clearing organizations.

Unless you are referring only to futures clearing organizations, this statement is potentially incorrect. If netting in fact takes place at the clearing bank, how can the bank retain the legal right to accept a credit from one clearing agency for a member and refuse to pay a debit balance for the same member to another clearing agency. How, further, are obligations due at 6:30 a.m. Chicago time in Fed Funds netted with afternoon settlement obligations in next day Clearing House Funds. Netting of settlement payments can only truly take place when times, forms of funds, and legal obligations with respect thereto are conformed by all parties. This realization comes to light only when thoughtful analysis is made of the problems, which the SCG is attempting to do, and consensus and agreement on solutions is reached.

Now p. 41.

See comment 14.

Now p. 46.

See comment 15.

Now p. 47.

Now p. 47.

See comment 16.

**Appendix V
Comments From the National Securities
Clearing Corporation**


Richard L. Fogel

Page 10.

In responding to your request for comment on your previous draft, we forwarded a very detailed mark-up of your report. While some of our corrections were incorporated, some were not. Accordingly, our comments this time attempt to only address broad areas, rather than attempt to catch every factual inconsistency.

We trust the above has been helpful to the GAO, and stand ready to discuss in greater depth our comments, at your convenience.

Very truly yours,



Robert J. Woldow

Attachment A.

**NEW LISTED CLEARANCE SYSTEM
(Implemented August 18, 1989)**

Locked-in Trade Processing

Between 6:00 p.m. and 8:00 p.m. on the evening of each trading day, NSCC receives locked-in trades from the NYSE and Amex trading systems. NSCC's T-Contract process then passes the locked-in transaction data to NSCC's surveillance, billing, and pending trade systems before reporting the results in print and machine readable form to the members which usually occurs between 10:00 p.m. and Midnight the same day. [n.b. NSCC's stated output time to participants is Midnight.]

Night of Trade Date (NTD)

While the T-Contract system is processing, and completely independent of that function, the NTD process begins at approximately 5:00 p.m. on the evening of trade date. At this time, participants may begin to submit trade input for trades other than from NYSE and Amex trading systems. The system is capable of receiving multiple (regular-way) transmissions from a single member firm for these trades before the scheduled T+1 2:00 a.m. cutoff. Also at 5:00 p.m., NSCC initiates concurrent editing, providing enough participant data is received, to begin the immediate matching process.

As participants' data is received, transactions are edited and then processed through the immediate multi-part audit trail match. In addition to the normal trade matching criteria, such as security, price, quantity, and clearing broker, the audit trail match also uses the executing badges, contra executing badges and time of execution within a two minute window to compare the trades. After all editing and immediate matching is completed, transactions are processed in the final match. The final match is an exact share quantity match using audit trail data when possible but not required, trade quantity summarization, suggested name and partial suggested name. Partial suggested name applies only to an omnibus account and a specialist.

After the final match is completed NSCC generates a Results of Comparison, or ROC file, for each exchange. The exchanges use this file to build their data base of uncomparing transactions for subsequent member firm on-line trade resolution. The exchange systems are usually open for business at 7:00 a.m. on T+1.

Attachment A.

Page 2.

To accommodate participants who miss the 2:00 a.m. deadline and the final match, NSCC developed a safety net feature. The safety net consists of sending the late data, after it has been edited, to the respective Exchanges' trade resolution system the morning of T+1. NSCC and each exchange monitors the use of this mechanism to ensure it is not abused.

Shortly after the ROC files are created for the exchanges, member firm machine readable and print output is available. This usually occurs anywhere from 3:00 a.m. to 4:00 a.m. on T+1. The actual hard copy print output is also distributed to the member firms by approximately 7:00 a.m..

Adjustment Processing

Beginning approximately 7:00 a.m. each business day participants begin accessing the NYSE and Amex on-line terminal based correction systems. (The NYSE system became fully operational with trades of July 18, 1989 and the Amex system with trades of November 24, 1989.) Currently, P&S corrections are submitted on T+1 while floor adjustments are processed on T+2. The NYSE and Amex plan to move the floor adjustment process to the afternoon of T+1 sometime in the first quarter of 1990.

Regardless of what day adjustments are processed, the results are transmitted back to NSCC in the evening of the same day, processed between 6:00 p.m. and 6:30 p.m.. NSCC then reports these adjustments back to the participants by approximately 8:30 p.m. that evening in machine readable and print format. All compared transactions are then pending for settlement in either CNS or the Balance Order Accounting System depending on the securities eligibility for book-entry movement.

OTC COMPARISON CYCLE ACCELERATION (Implemented on May 5, 1989)

On May 5, 1989 NSCC enhanced its Over-The-Counter (OTC) Clearance System by implementing a Night of Trade Date (NTD) initial match routine, moving up the trade resolution process one day. The locked-in trade process was also modified to accept additional locked-in trade input from the NASD's Automated Confirmation Transaction (ACT) service. (The ACT system allows participants to lock-in all the post execution steps, i.e., reporting, comparison, and sending locked-in trades to the clearing organization or in this case, to NSCC which is the hub processor

Appendix V
Comments From the National Securities
Clearing Corporation

Attachment A.

Page 3.

for all securities clearing corporations.) OTC Comparison Cycle Acceleration was developed in conjunction with the NASD's ACT system. The NASD plans to implement ACT in stages which began with a pilot with trades on November 17, 1989.

To accomplish the NTD matching, participants are required to submit their non-system trade input before 2:00 a.m. on T+1. By enhancing the its OTC system, NSCC was able to remove system interdependencies between the NTD match and the adjustment process.

Adjustment Processing

The implementation of the OTC cycle acceleration allowed NSCC to distribute the results of comparison to the NASD's Trade Acceptance and Reconciliation Service before 8:00 a.m. the following day (T+1). TARS is a terminal based system that was implemented by the NASD in the Summer of 1983 to automate the trade correction process. It has been operational ever since.

The following are GAO's comments on the National Securities Clearing Corporation's letter dated December 22, 1989.

GAO Comments

1. The use of the word "some" in the executive summary and first chapter is for the purpose of brevity. Chapters 2 through 4 identify the organizations referred to in the overview and first chapter.
2. The text of the executive summary has been altered on p. 4 to reflect NSCC's suggestion.
3. OCC has suggested new wording here, which we have adopted on p. 11.
4. CFTC also uses the term "self-regulatory organizations." The Commodity Exchange Act is not explicit on CFTC oversight of futures clearing organizations. However, CFTC claims direct regulatory authority over clearing organizations by defining "contract market," over which it has clear regulatory authority, to include clearing organizations. At least one court has upheld this authority. See the discussion on pp. 21-22.
5. We have deleted the words "matching systems." We do not say or intend to imply that NSCC was responsible for unmatched trades. See chapter 2 for a more extensive discussion of this issue.
6. The reference to stock clearing organizations has been deleted.
7. The focus of chapter 2 is changes in trade processing systems in response to the crash. Other issues that would facilitate movement to a shortened stock settlement cycle are mentioned at the end of chapter 4 on pp. 49-50.
8. The text has been altered on pp. 31-32 to indicate that NSCC's capital requirement for its members is to maintain \$50,000 in capital in excess of whatever the capital requirement established by the SEC and designated examining authority.
9. The sentence has been altered on p. 32 to indicate that a clearing member default occurs when the member fails to pay for the receipt of a stock instrument and, on the options and futures side, fails to pay for losses incurred in market movements.
10. The text has been altered on p. 34 to indicate that NSCC has taken steps to increase the liquidity of its clearing fund.

11. A sentence has been added on p. 37 indicating that the SCG has moved beyond the planning stage and is currently working on a central data base and other suggested improvements.

12. We agree that the stock clearance and settlement system should be strengthened by further reducing or mitigating known risks and have altered the text to make this more explicit. See p. 37.

13. We have omitted the word "stock" on p. 40.

14. The text has been modified on p. 41 to indicate the exact nature of the withdrawal or default and its effect on NSCC.

15. We mean netting of obligations among clearing organizations in different markets or intermarket netting, not intramarket netting. The text has been changed on pp. 47 and 48 to indicate that we mean netting of payments among clearing organizations in different markets.

16. This sentence has been deleted.

Comments From the Options Clearing Corporation

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

The Options Clearing Corporation
440 South LaSalle Street Suite 3920
Chicago, Illinois 60605-1050

Wayne P. Luthningshausen
Chairman of the Board
312 322 6222

December 8, 1989

Mr. Richard C. Fogel
Assistant Comptroller General
United States General Accounting Office
General Government Division
441 G Street NW
Washington, DC 20548

Dear Mr. Fogel:

We at The Options Clearing Corporation (the "OCC") thank you for this opportunity to submit formal comments on your draft report entitled Clearance and Settlement Reform: The Stock, Options, and Futures Markets Are Still at Risk and dated November 21, 1989.

We commend the efforts of your staff and appreciate the inclusion of several of the OCC's prior comments. As we have discussed with you, however, several areas of the report remain incorrect or misleading. We understand that several of these may have been adjusted after our review of the draft which was sent to us, but for the record we can only comment on that draft which we received. We will address the areas of concern point by point.

Page 26 - "Since the BOTCC was only indirectly involved in the events of the October 1987 market crash, it will be discussed only in relation to information sharing among clearing organizations."

The report purportedly examines clearance and settlement in the stock, options, and futures markets. Yet the Board of Trade Clearing Corporation is not part of the study. BOTCC is the world's largest futures clearing organization. It clears stock index futures, which were involved in the October 1987 crash. Moreover, an information sharing system developed by BOTCC is presented in the report as if it is a key solution to certain U.S. market problems. The systems, practices and processing capabilities of BOTCC, however, including BOTCC's practices and capabilities in administering the information sharing

Now p. 20.

See comment 1.

See comment 2.

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Clearing Corporation

system, appear to be overlooked or ignored generally by GAO. This is quite perplexing.

Pages 17-18 - "The SEC regulates stock and options clearance and settlement. The CFTC regulates futures clearance and settlement."

This comparison is inaccurate and misleading, as the extent of each agency's regulatory authority, and the attendant regulatory practices and philosophies, differ significantly. For example, the SEC's authority over securities clearing organizations is detailed and is explicitly set forth in the Securities Exchange Act of 1934 as amended. In fact this authority includes a variety of clearly stated public policy objectives regarding the nation's securities clearance and settlement mechanisms. In contrast, the Commodity Exchange Act (the "CEA") does not empower the CFTC to regulate futures clearing organizations per se or as part of a national system having stated characteristics, but rather assumes that by regulating the contract markets the CFTC will have an effect on clearance and settlement operations and practices. Further, the CEA does not establish explicit public policy and national systems objectives for clearing and settlement. The disparity in regulatory practices and philosophies has inhibited market and clearing coordination.

Page 62 - "The OCC made late payments to all of its clearing members on October 20, 1987. OCC delayed paying its members by 2 and 1/2 hours because it did not receive prompt payment from various clearing members." Page 63 - "Since issuing its report, the SEC discussed this issue with OCC, but the discussions have not resulted in OCC revising its practices to correct the problem."

This is incorrect; steps have been taken to correct the problem. Subsequent to the October crash, for example, the Margin Committee of OCC's Board of Directors formed a subcommittee to examine all aspects of our financial backup system and to recommend, where necessary, appropriate revisions to our practices. One of the recommendations of that subcommittee was that OCC should net all pay and collect obligations to a single pay or collect amount for each clearing member across account types, rather than within each account as had been our practice. Because we had been effecting settlement account by account, if a firm owed funds to OCC in one account and was owed funds by OCC in another account, conceivably OCC could fail to collect from and at the same time pay a potentially defaulting member. To avoid that consequence, OCC made late payments on October 20. We have filed rule changes with the

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Securities and Exchange Commission to net settlements across account types and the Commission has requested comments on this filing. When approved, this change in practice will enable OCC to make money settlement on time without risk of potential clearing member default.

Now p. 35.

Pages 50-51 - "The SEC reported that on October 21, 1987, the OCC was notified by one of its clearing member's settlement banks that the bank would not honor a \$3.1 million margin payment request for the firm. The OCC analyzed the risks associated with the clearing member's position and decided to relieve the clearing member of its margin payment, primarily because OCC was holding \$12.5 million in collateral from that clearing member. However, according to the report OCC later learned that the clearing member also was having difficulty financing a \$30 million settlement at NSCC. We believe that had OCC known about the stock payment obligation, it may have decided not to relieve the clearing member of its margin payment out of concern that OCC may not eventually have gotten paid by the clearing member."

See comment 5.

As the SEC is aware, and as we pointed out to GAO in our prior written comments and in discussions, this summary is incorrect. OCC was aware of the firm's \$30 million settlement obligation with NSCC, which related to a stock loan. Because the firm's bank had reached 100% of its advance rate, it initially refused to extend further credit. Realizing the firm's liquidity problem, OCC reduced its margin requirement to free up collateral so that the bank would lend the firm additional funds necessary to meet the NSCC settlement.

Now pp. 4, 5, 38, and 50.

One of the major GAO recommendations found in this report (pages 5, 6, 41, 51, 55 & 56) is that clearing organizations should share information among their counterparties in other markets. Further, the report suggests that a system developed by BOTCC for the sharing of pay and collect information is a potential mechanism that could be used to this end.

See comment 6.

Such recommendations respecting information sharing are vague and ill-considered. First, the report does not define what arrangements, terms and conditions constitute competitively neutral and efficient information sharing. Second, the report implies that the BOTCC pay/collect information sharing system satisfies public policy and market coordination requirements, when in fact this system has serious drawbacks. Third, information sharing is inadequate; our markets need effectively coordinated

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mechanisms for reducing risk within the existing linked market context.

It is difficult to address the first point, since it is unclear what types of information GAO thinks should be shared. As for the BOTCC pay/collect information sharing system, OCC joined this system in response to regulator insistence and we continue to have strong reservations about its efficacy and its character. The risks which can be associated with information sharing -- depending on the information shared, the methods used, and the context in which data is shared -- need to be understood well when making policy recommendations. In particular, the structure of the BOTCC arrangement may have substantial repercussions over the long term. Because BOTCC is the system operator and also is the only system "participant" with significant contractual rights and remedies, other participating clearing organizations are far from equal partners. In such an arrangement, the clearing organization-creditor with superior knowledge and information is better positioned and may in fact be able to take advantage of the information flow to protect itself relative to other entities. A suitable information sharing agreement should be structured so that the sharing does not provide competitive advantage to any of the participating clearing entities. Ideally, information sharing programs should be administered by an independent party with due regard to competitive and operational impact. We would have expected such concerns to be self-evident to the GAO.

Additionally, apart from its potential to reveal points at which one clearing organization's draft is offset by another's obligation to pay, the existing BOTCC system is of limited benefit. Moreover, that benefit is outweighed by the risk of a) fostering clearing organization complacency in the absence of valid legal rights of offset and b) triggering a race to the bank account of a member -- a race which under the BOTCC system and existing clearing procedures will always be won by the system operator. Now that OCC is a participant, we question the technical competence of the system, which is not handling options correctly. BOTCC, due to its system problems, has created mismatched data that it has disseminated, causing the CME to question OCC data transmitted to it by BOTCC. On at least one occasion, September 15, 1989, in particular, BOTCC has misused system information by telephoning the bank involved in a settlement, rather than OCC. These are the types of problems for which OCC has no contractual remedy, and point out clearly the need for an independent processor. Given our experience, it seems doubtful that NSCC could easily be brought in. Further, to be meaningful, intermarket

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information sharing with respect to equity securities should include sharing of bank regulator information concerning bank clearing activities and risks to the extent that banks are participants in equity clearing organizations.

Most importantly, however, information sharing arrangements are a poor second best. Much more meaningful are mechanisms which reduce risk by integrating collateral and credit facilities and establishing a network of legally enforceable creditors' remedies, including in particular priority security interests. Two such mechanisms are the numerous interfaces maintained between OCC and the nation's stock depositories and OCC's cross-margining arrangement with the Chicago Mercantile Exchange. While the report mentions cross-margining in passing, the report emphasizes information sharing and does so without precision. Cross-margining provides greater benefits than information sharing without drawbacks. As we have discussed with you, cross-margining involves the calculation of a single margin amount in recognition of a hedged position in which each side of the hedge is traded in a separate market. Cross-margining provides both financing relief and enhanced risk management in functionally unified markets. The concept of cross-margining was endorsed by The Report of the Presidential Task Force on Market Mechanisms (The Brady Commission), the Report of the Working Group on Financial Markets (The Presidential Working Group), the CFTC's Final Report on Stock Index Futures and Cash Market Activity During October 1987, and the SEC's The October 1987 Market Break: A Report by the Division of Market Regulation. The goals of the OCC/CME cross-margining mechanism are (1) to recognize all components of a related portfolio, and thereby, recognize the true risk of a given member's activity, (2) to facilitate the pledging of portfolio assets to finance asynchronous cash flows, and (3) to facilitate the netting of settlements between OCC and CME and thereby reduce the payments system impact of intermarket hedged positions while preserving the independence of the two clearing organizations and, thus, assuring their ability to respond to the unique needs of their market participants.

Perhaps of greatest systemic significance, cross-margins eliminates excessive initial margin requirements securely through the use of legally enforceable liens that span separate clearing entities, and in that way facilitates both payments and obligation netting within various markets. Cross-margining enhances the financial integrity of the clearance and settlement mechanisms in the cross-margined markets by substituting correlated positions, which have offsetting risk characteristics, for cash (or cash equivalent) margin deposits, which have a static value. And

See comment 7.

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cross-margining provides clearing organizations, banks, and regulators with more accurate information about the true risk of intermarket activity. Also, cross-margining -- when coupled with a carefully constructed pledge program -- can facilitate the financing of asynchronous cash flows. Accordingly, as we have discussed, rather than emphasizing simple information sharing, the GAO report should recommend strongly the expansion of cross-margining so that market makers, floor traders, and other market professionals, including major institutional investors, can take advantage of its beneficial effects.

We appreciate your cooperation in incorporating these comments into your final report.

Sincerely,


Wayne P. Luthringshausen
Chairman of the Board

The following are GAO's comments on the Options Clearing Corporation's letter dated December 8, 1989.

GAO Comments

1. BOTCC clearance and settlement systems are not included in the scope of this report. During the October 1987 crash, the primary concern of regulators and SROs was with CME's stock index futures contract and its interrelationships with the stock and options markets.
2. We do not intend to endorse the BOTCC information sharing system, but only to use it as an example of a way to implement the Working Group recommendation for centralized collection and availability of pay and collect information. An information sharing system jointly managed and controlled by system participants would be most desirable. This issue is further discussed on pp. 38-39.
3. Although the Commodity Exchange Act is not as explicit as the Securities Exchange Act in laying out CFTC's regulatory authority, CFTC regulates futures clearance and settlement in much the same way as SEC. Both CFTC and SEC review clearing organization rules and do evaluations of clearing organization operations and practices. This issue is further discussed on p. 21.
4. The text on p. 44 has been modified to indicate that on October 11, 1989, a corrective rule change was filed with the SEC.
5. The SEC crash report is paraphrased here. The sentence beginning with "We believe...." has been deleted to eliminate speculation and the sentence beginning "To protect itself..." has been added on p. 35 in response to OCC suggestions.
6. A risk exposure system should be jointly designed, managed, and controlled by its participants. We agree that system participants should not be able to use the information for competitive advantage. This issue is further discussed on pp. 38-39.
7. Cross-margining programs do not solve all cash flow problems. According to CFTC documents, cross-margining programs only apply to a limited number of contracts and limited categories of market participants. Even if expanded to other financial instruments and market participants, cross-margining programs lower the levels of margin funds in the financial safeguard system. Regulators will need to be careful not to increase liquidity at the expense of solvency.

Comments From the Chicago Mercantile Exchange

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

CHICAGO MERCANTILE EXCHANGE

William J. Brodsky
President and
Chief Executive Officer
312/930-3300

December 18, 1989

Mr. Richard Fogel
Assistant Comptroller General
General Government Programs
United States General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Fogel:

The Chicago Mercantile Exchange is pleased to have the opportunity to provide formal comments on the draft report entitled "Clearance and Settlement Reform." We believe the efficient operation and financial integrity of the clearance and settlement systems are a vital element in the success of the nation's financial markets. A better understanding of these complex mechanisms among Congress, regulatory agencies, and the general public will significantly contribute to the improvement of the clearing and settlement process and ultimately bolster the competitive position of the United States in world financial markets. Thus, we welcome the General Accounting Office's (GAO) report as a contribution to that understanding.

Although in your transmittal letter to Congress you state that the report "...evaluates the sufficiency of industry and federal regulator actions..." we find this draft of the report wanting in several important areas. More specific comments are made below, but in general we have the following areas of concern:

- the report ignores the events of October 13, 1989, a nearly ideal context in which to measure the adequacy of changes in clearance and settlement systems and the regulation thereof;
- the report ignores major elements of the existing system, particularly with respect to information sharing;
- conclusions are drawn without qualitative standards for comparing the clearing and settlement practices across industry segments and with only limited quantification of a problem and supporting evidence, either statistical or testimonial.

30 South Wacker Drive Chicago, Illinois 60606 312/930-1000

LONDON

NEW YORK

WASHINGTON, DC

TOKYO

See comment 1.

See comment 2.

See comment 3.

Appendix VII
Comments From the Chicago
Mercantile Exchange

We understand that many of these shortcomings were the result of a decision to limit the scope of the report. Because we feel the public interest would be served by a broader scope, we will draw attention to a number of areas where a change in scope would increase the utility of the report. Our detailed comments are set forth below.

The Title:

Our difficulties with this draft report begin with its subtitle: "The Stock, Options, And Futures Markets are Still at Risk." This is alarmist. Furthermore, the report makes no effort to measure the relative levels of risk in different segments of the clearing and settlement system, to quantify the current level of risk as compared to 1987, or to evaluate what amount of risk is appropriate for a clearing organization to shoulder. Absent such support, we see no grounds to conclude that the markets are "...still at risk." The report describes differences in clearance and settlement practices in different market segments, but makes no evaluation as to the relative risk of those practices. Throughout the report there is an assumption that uniformity in the risk profile of clearing organizations is desirable, but there is never an explanation as to why this would be good public policy.

See comment 4.

See comment 5.

Risk is inherent in the financial markets. Fundamentally, clearing organizations exist to control that risk, and to share losses according to an established formula in the event those controls are less than totally successful. Congress, the American public, and the competitive position of U.S. financial markets would be much better served if the General Accounting Office asked the truly important question about clearing organizations: Would risk be reduced if those financial markets which do not have organized clearing facilities developed them? Those markets, which include foreign exchange and many types of public and private debt, dwarf the exchange traded securities, options, and futures markets. Although never discussed by the GAO, very strong incentives are at work to cause existing clearing organizations to continue to improve their operation. What incentives exist with respect to the safety of those other markets?

See comment 6.

Categories of the Report:

The GAO's report correctly divides the issues surrounding the operation of clearing organizations into three of the four appropriate categories. The three identified topics are trade processing, risk management, and credit and settlement. The fourth topic, the operation of risk sharing rules, is never fully discussed. In our comments on each of these sections, we will clearly show that the practices in the futures industry are of outstanding quality and worthy of emulation in the clearance and settlement of other exchange traded instruments.

See comment 7.

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Trade Processing:

The report correctly notes on page 28 that "efficient trade processing systems are crucial to financial markets." It goes to great length to describe the trading process systems in stock, options and futures markets, but never explores the incentives which give rise to increased efficiencies. We believe that the driving force behind increases in efficiency is competition. The positive results of competition can be readily seen among futures clearing organizations and by comparing trade processing practices between the futures and securities industries. For instance, multiple clearing organizations possess two specifically positive attributes; they promote innovation through competition and facilitate the risk management function by housing the clearing agency and the exchange within a single or closely related institution. Many of the innovations in securities clearing, for example continuous net settlement, were developed by clearing organizations (in this case, the Pacific Clearing Corporation) which are no longer in business. GAO never analyzes whether the current lack of competition among securities clearing organizations might explain the delays in implementing the Working Group's recommendations with respect to faster trade comparison for stocks.

Trade processing in the futures industry is qualitatively superior to that in the securities industry. First, it is superior in terms of timing. At the Chicago Mercantile Exchange, over half the day's transactions are matched prior to the closing bell. Similar figures describe the situation at other futures exchanges since the introduction of intraday trade matches. Since trade matching is performed by the clearing organization in much of the futures industry, the information from those matched trades is immediately available for risk management purposes. Where appropriate, it is also available for information sharing with other clearing organizations. Securities clearing organizations do not have any direct information as to how today's trading has impacted the risk profile of their clearing members until the end of the day because that is when they receive the matched trade data. GAO makes the point that trade reconciliation takes longer for stocks (although it provides no objective standard for determining adequate trade match time frames), but totally ignores the qualitative advantage that many futures clearing organizations possess.

The second area where trade processing is superior in the futures industry is with respect to the audit trail. At the Chicago Board of Trade and the Chicago Mercantile Exchange, the record required for submission of trade data also contains vital information about the audit trail (which has been an important concern of the GAO in other studies). For example, the account number of the customer on whose behalf the trade was executed is included. This allows immediate comparison of matched trade data to the data base of large trader information (which does not exist in the securities industry) for risk evaluation, market surveillance, and trade practice compliance purposes.

Now p. 23.

See comment 8.

See comment 9.

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The CME recognizes the importance of improving the audit trail. We have taken certain steps toward those improvements, and have several additional steps in the early stages of implementation. Currently, other information about the time of entry of the order, the clearing members and individual brokers involved in the actual execution of the trade, and the type of account being traded are all present on the trade record at the time it is submitted for matching. This virtually eliminates the need for post-trade requests for data submission, which can delay an investigation many days. It also provides a strong incentive for clearing members to submit audit trail information on a timely basis since their trades will not match if they do not.

Our final note with respect to the section on trade processing is that notwithstanding the need for improvements which we and other organizations continue to make (the CME introduced another intraday trade match, for a total of four, on December 8, 1989), one section of the report implies an unreasonable performance standard. On page 33 the report complains that during October, 1987, the securities industry, "...had to modify working hours to complete reconciliation." Regardless of the increases in efficiency and capacity in trade processing on all futures and securities exchanges, the requirement to work overtime to handle unexpected spikes in volume will always be present.

Risk Management:

This section has significant omissions and could be further improved with the development of comparative standards. With respect to information sharing there are eleven clearing organizations which are cited in the introductory section of your report. Ten of the eleven participate in the futures industry's information sharing system administered by the Chicago Board of Trade Clearing Corporation (CBOTCC). The Options Clearing Corporation (OCC) was recently persuaded by the CFTC to join the system. While progress in expanding this network may not have been as rapid as one might hope, it has been accomplished. There has been a long-standing invitation to NSCC to join the system. It appears that only the addition of the NSCC to the system stands in the way of universal implementation. In addition to this system, a far reaching information sharing agreement is in place between the CME and the OCC with respect to cross-margining.

The quality as well as quantity of the information that is available about mutual clearing members through the CBOTCC administered system has been dramatically improved since October 1987. These changes were made early in 1988. Not only is information about mark-to-market cash flows shared, but options premium payments are separately accounted for and surplus/deficit margin information is shared. Many clearing organizations and exchanges have fully incorporated this shared data into their risk management systems and run a complete analysis of daily information

Now p. 42.

See comment 10.

See comment 10.

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relative to historical patterns and adjusted net capital of clearing members.

The CME believes that the OCC's comments as reported on page 52 with respect to the integrity of the CBOTCC as administrator of this shared information system are not well founded. We have over a decade of experience in the daily sharing of this type of information with the CBOTCC, and have not had a single incident in which unfair advantage was taken. Additionally, the problem cited by the OCC is not a function of who administers the system, it is entirely a function of when the OCC chooses to establish its settlement deadlines. The Chicago futures clearing organizations require settlement (of both payments to as well as from the clearing organization) at 6:40 a.m. local time. OCC does not settle until 9:00 a.m. in the case of payments due OCC, and 10:00 a.m. in the case of payments due from OCC. Regardless of who administers the information sharing system, OCC is placing itself and its clearing members at risk that funds will not be forthcoming at this later settlement time. Such a failure could be because of payment to another clearing organization, but equally likely, since the OCC's markets have already been open for 30 minutes before settlement of the previous day's obligations are due, because of new information available to the banker about the current day's market situation.

Audit Departments: There is a major omission in the analysis of information sharing. There is only limited mention of the involvement of the audit departments (sometimes referred to as the financial surveillance departments) of the exchanges and their role in information sharing. It is these departments which, under futures and securities law as well as exchange rule, have the inspection powers over the books and records of clearing members. They function as the "Designated Examining Authority (DEA)," in the case of securities, and the "Designated Self-Regulatory Organization (DSRO)," in the case of the futures industry. Since 1978 there has been a group in the futures industry called the Joint Audit Committee, which exists specifically to develop standard procedures and to share information. Although there had been considerable informal information sharing among futures and securities self-regulators, another group, the Intermarket Financial Surveillance Group (IFSG) was formally brought together at the initiative of the Chicago Mercantile Exchange with the purpose of developing standard procedures and sharing information across the futures and securities industry. This group, which meets quarterly and shares information by telephone on a daily basis if necessary, consists of representatives of every self-regulatory organization, as well as the Securities Exchange Commission and the Commodity Futures Trading Commission, which participate as observers.

Audit departments play a key role in the total operation of the risk management system. At the CME, part of the mission statement

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of the Audit Department is the protection of the Clearing House. Major improvements in risk management have been made since 1987 in our Audit Department. A separate risk management unit has been established whose primary function is to evaluate the impact of changing market conditions on the financial health of our clearing members. An on-line risk management system, called the Account Risk Management System (ARMS) has been developed for its use, which takes information from our large trader data base and calculates the impact of current market prices on those positions. This allows us to monitor the concentration of risk among accounts of a particular clearing member, as well as to track particularly risky accounts across clearing members.

A risk management survey has been developed by our Audit Department, and was recently adopted by all of the members of the Joint Audit Committee. This survey is a comprehensive analysis of the risk management and credit policies at every clearing member. The CME will administer it to "high risk" firms first. Once administered by the DSRO, the results will be shared with all other members of the Joint Audit Program. The survey by no means limits itself to questions about the futures industry component of a clearing member's business; it examines practices in the equity and over-the-counter principal-to-principal markets as well. An Audit Information System has been established to track financial information from all clearing members and display key ratios on a computer terminal. Other procedures, such as debit/deficit reviews, continue to be enhanced.

Elements of information sharing involving the audit departments of the various exchanges receive limited attention in the report. Since August, 1979, the New York Stock Exchange (NYSE) has performed certain audit functions of major broker/dealers on contract for the CME and many other futures exchanges. This is a clear example of intermarket information sharing. In cases where a clearing member is dually registered as a broker/dealer and a futures commission merchant (FCM), standard industry practice has long accepted the filing of the SEC's FOCUS report for notifying futures regulators and self-regulators of key capital and financial information. Discussions among the futures and securities industry at the Intermarket Financial Surveillance Group are currently taking place to merge the form IFR of the futures industry with the FOCUS Report of the securities industry.

Many studies of the 1987 crash have ignored the vital contribution that information sharing among audit departments across industry sectors made to controlling risk in both October, 1987 and again in October 1989. The GAO report could be an appropriate mechanism to remedy this oversight. Audit departments have always been active participants in risk management information sharing, and are sparing no effort to continue to improve these functions. Interestingly, while GAO notes the creation of the Securities Clearing Group, it neglects to ask why futures clearing

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organizations and exchanges have never been invited, even as non-voting observers, to participate in this aspect of information sharing.

It is true that clearing organizations have limited abilities to monitor their clearing members in all other markets. What the GAO fails to recognize is that this limitation does not apply to risk in other exchange listed markets. There is a good information sharing system in place for these risks, and it is being constantly strengthened. The hole in the system, which is where most of the risk to the U.S. financial system rests, is in the off-exchange, over-the-counter, principal-to-principal markets for such instruments as foreign exchange, debt instruments and swaps. These are largely unregulated markets, and thus there is nobody from whom to obtain information or with whom to share information. In addition, the ability of broker/dealers and other entities to engage in risky bridge loans and junk bond financing in non-reporting affiliates compromises the value of what information is available. A complete report would have focused on this problem, which was pointed out to GAO staff in our initial discussions but for some reason determined to be out of scope prior to the preparation of the current draft of the report.

Capital Requirements: This area of the report would be greatly improved by the development of an objective standard of analysis. GAO reports that CME has increased its minimum capital requirements to \$1.5 million and that the OCC has increased its minimum capital requirements at entry to \$1 million. No evaluation of adequacy is made. OCC only requires its clearing members at the minimum to maintain \$750,000 in capital. Barriers to entry do not help handle risk management during periods of extreme volatility since the odds of a major market move on the day a firm becomes a clearing member are remote. What provides protection is the level of capital which must be maintained. Nowhere does GAO point out that CME minimum maintenance requirements are twice OCC's, and twenty times NSCC's.

The CME and many other futures clearing organizations employ twice daily mark-to-market revaluation of all positions (a policy which, if applied to the savings and loan industry, probably would have saved the American taxpayer hundreds of billions of dollars). We also have a settlement policy which transmits payment instructions to settlement banks to pay funds to clearing members at the same time as instructions to pay the Clearing House (instead of first collecting funds and an hour later paying them out, which implies that the latter is contingent on successful completion of the former). As a result, the CME believes it has the strongest clearing and settlement system of all futures and options exchanges.

A more thorough analysis of capital adequacy by GAO would be desirable in other important areas. Comments by NSCC and SEC (see pages 45 and 46) to the effect that additional capital would be

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See comment 13.

burdensome on small clearing members are reported, but never critically evaluated. The fact of the matter is that in both 1987 and 1989 it was relatively small firms in the securities industry that defaulted on their obligations to the clearing organizations. However, it is the case that minimum capital requirements are only part of the picture. It is equally important that as a firm grows beyond the minimum threshold for clearing membership its capital requirements grow with it. Capital adequacy is just as important at a major Wall Street broker/dealer as anywhere else. At the CME, we have a position based capital rule, where minimum capital requirements increase as the number of a clearing member's positions increases. We are unable to determine whether other clearing organizations have similar rules by reading this GAO report.

See comment 14.

The CME believes that our record with respect to risk management is very strong. In the history of our Exchange, there has never been a default by a clearing member nor has a customer of a CME clearing member ever lost any money as a result of the clearing member's insolvency. The record in the futures industry as a whole is very good as well. No FCM became insolvent in October 1987, a claim that the securities industry cannot make with respect to broker/dealers. Risk management in general and information sharing in particular continues to be enhanced. To suggest that risk management in the futures industry is a candidate for "reform," as does the title of the report, is less than fair.

See comment 15.

Loss Sharing Rules:

A complete evaluation of clearing and settlement policies should have turned to clearing organization loss sharing rules at this point. Although the GAO provided a limited discussion of changes in guarantee funds, we would like to point out that this is but one element of the loss sharing provisions in place at clearing organizations in the futures industry.

Now pp. 29-30.

A key development in the loss sharing arrangements at futures clearing organizations, which was begun by the CBOTCC well before October 1987 and fully implemented at the CME since then, is the parent guarantee rule. The parent guarantee, which may be found in CME Rule 901.L, requires that all individual and corporate owners of five (5) percent or more of a clearing member guarantee the performance of the house account of the clearing member to the clearing organization without limit in proportion to their share of ownership and/or control. This guarantee does not apply to obligations of customers, nor does it subject the guarantor(s) to assessment in the event of the failure of another clearing member. It prevents a parent corporation or individual(s) from creating a shell subsidiary or affiliate to shelter its obligation to pay for trading losses which are incurred on its behalf. GAO's report notes a case in the securities industry, on page 43, where a clearing member defaulted and the parent company did not provide

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additional capital. It makes no attempt to analyze whether the parent guarantee innovation of futures clearing organizations would have avoided that situation, or whether a parent guarantee rule could be an appropriate mechanism to avoid the SEC's concern about higher capital requirements limiting access to clearing organizations in certain instances.

While the report recognizes that the CME has increased its pool of security deposits (as we call our guarantee fund), no mention is made of our unique common bond rule which supplements this fund. In the event of a default by a clearing member which could not be satisfied by its margins and other assets available to the Clearing House, its parent guarantee, the surplus funds of the Exchange, and the aggregate security deposits of all clearing members, the CME would then invoke its liability rule which looks to all clearing members for remedy. The balance of the unsatisfied default would then be allocated among the clearing membership according to a preset formula, taking into account each clearing member's adjusted net capital, trading volume and share of open interest. Consistent with the CME's policy of providing the highest level of safety in the provision of clearing services, this common bond has recently been revised to strengthen the formula and prevent any possibility of a clearing member avoiding its share of an assessment.

A comprehensive analysis by the GAO in its report on clearance and settlement would have led to the recognition of these additional elements of loss sharing arrangements. Application of such a standard might have led GAO to question why these arrangements are limited to clearing organizations in the futures industry. At the very least, this would be further evidence to support the proposition that a diversification of providers of clearance and settlement services results in strength through competition and innovation.

Credit and Settlements:

We believe that there are certain elements of the changes in credit and settlement practices which merit greater attention than is provided by the GAO in its report. Three steps have been taken by the CME since October 1987 to modify our settlement procedures, and the success of these steps was evident in October 13-16, 1989. First, we have fully automated a twice daily mark-to-market, so that funds move both to and from the Clearing House by 3:00 p.m. each afternoon, and morning banking reports accurately reflect as many intraday settlement calls as occurred. Second, we have, in conjunction with the CBOTCC, entered into highly detailed standard settlement agreements with all of our settlement banks. In addition to clarifying when payments (both incoming and outgoing) become irrevocable, they also stipulate the deadline for bank response based on when the bank receives information from the clearing organization. Third, in recognition of the large volume and amounts of funds transfers for daily settlement between Chicago

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and New York, the CME in August 1989 added two New York based banks to our list of settlement banks. The addition of these two institutions, Bankers Trust Company and Chemical Bank New York, will potentially reduce the inter-Reserve District transfer of funds to settle CME contracts thus increasing safety and efficiency. Had GAO investigated the current situation respecting settlements, it would have found absolutely no payment problems involving futures clearing organizations in October 1989.

Various mention is made of unusual settlement practices without any analysis as to their importance. GAO notes on page 58 that the NSCC still requires daily settlement by certified check, without noting that this might be unusual in an era of electronic payment systems and without acknowledging that these checks are for (bank) clearing house funds, in effect delaying settlement finality an additional day. By contrast, the twice a day settlement in the futures industry and the payments to and from OCC are in "same day" funds transferred via the Federal Reserve System's FEDWIRE network. The relative merits of these practices stand in stark contrast to one another.

There is no analysis of clearing organization rules with respect to the timing of their substitution between the obligations of clearing members which were party to the original trade and the potential impact of such rules on the risks to customers. When the clearing organization must commit itself to guarantee a transaction, and its ability, if any, to "back out" certain transactions, is a key element of the safety and soundness of the marketplace.

The existing draft of the report devotes a great deal of attention to the adequacy of credit facilities to support clearing members. It correctly notes that there is some question as to whether the regulation of such credit facilities is the proper function of a clearing organization, although clearly they have some interest in the matter. The report ignores the area which should concern clearing organizations, and that is their access to committed credit facilities on their own behalf. The CME completed a \$250 million committed credit facility from a consortium of 14 major international banks in July, 1989. GAO does not mention this facility, nor does it mention that no other U.S. clearing organization has a larger committed facility. Again, such a comparison might improve the overall quality of the report.

Finally, in the discussion on pages 65 and 66 of futures style settlements for options, there is no mention of the fact that treatment of securities options in this manner would create vast asymmetries in cash flow between stocks and securities options. This is especially true of positions which include ownership of stock (which is not revalued daily) and a short call position. The CME believes that futures style settlement would make an important contribution to risk reduction in the futures markets by

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eliminating cash flow asymmetries. We have never advocated it for securities options.

Conclusion:

We believe the GAO's report, with the revisions suggested above, can perform a vital service in contributing to the understanding of the complex issues of clearance and settlement in the stock, options, and futures markets. We believe that safe and efficient clearance and settlement are vital to America's financial markets. In our view, many important improvements to these systems have been made since October 1987, and a careful examination of the behavior of these systems during the period October 13 to 16, 1989 would provide the GAO with assurance that the stock, options and futures markets are not at risk nearly to the extent the current draft of the report would lead one to believe.

We appreciate this opportunity to comment on the GAO's report, and the professionalism exhibited by GAO staff in conducting their investigation. We look forward to working with you on this important topic in the future.

Sincerely,



The following are GAO's comments on the Chicago Mercantile Exchange's letter of December 18, 1989.

GAO Comments

1. Although we agree that the October 13, 1989, decline did test, to a limited extent, the changes made in clearance and settlement systems, the size of the decline and the volume of trading did not approach those of October 19, 1987.
2. We disagree that the report does not discuss major elements of information sharing. The information on p. 35 discusses the BOTCC risk-exposure information sharing system. Issues raised in this and other comment letters on the BOTCC information sharing system are also discussed on pp. 39-40 of the report.
3. The report was never intended to be a comparative analysis of similarities and differences in clearance and settlement practices in stock, options, and futures markets. We base our conclusion upon judgments about federal agency and clearing organization progress made in response to Working Group recommendations. Such progress is not quantifiable beyond indicating that overall a particular Working Group recommendation has been completed, that there has been some progress on it, or that no progress has been made. See appendix I for the status of Working Group recommendations.
4. Our judgement that the clearance and settlement systems of stock, options, and futures markets are still at risk is based upon the fact that many Working Group recommendations made in May 1988 in response to events on October 19 and 20, 1987, have not been implemented. Although progress has been made on a number of issues, many changes have yet to be completed.
5. The risks assumed by a particular clearing organization should be consistent with the market and financial risks specific to the market it serves.
6. We agree that this is an interesting and important issue deserving further study. However, it is not within the scope of this report.
7. We agree that risk sharing rules are important elements in the safeguards of clearance and settlement systems. However, the Working

Group did not identify risk-sharing rules as problematic during the October 1987 crash and, therefore, they do not fall within the scope of this report.

8. It is not the purpose of this report to examine the relative merits of different organizational arrangements of clearing organizations in stock, options, and futures markets. The opposite argument to the position taken by CME is that multiple clearing organizations are unnecessarily duplicative and that there are economies of scale with fewer and larger clearing organizations. Large clearing organizations that are user-controlled can be innovative. Futures clearing may not be as competitive as implied here, with CME and BOTCC dominating the market.

9. The scope of our work did not include judging the relative advantages or disadvantages of futures clearing versus securities clearing arrangements.

10. Information sharing issues are discussed on pp. 34-37 of the report. Comments on information sharing are discussed on pp. 38-39 of the report.

11. We added the phrase "and exchange audit departments" on p. 35 of the GAO report. Although we consider the role of audit departments to be important to the financial integrity of clearance and settlement systems, the role of audit departments was not called into question during the October 1987 crash by the Working Group and, thus, is outside the scope of our report.

12. We agree that financial instruments outside the stock, options, and futures markets can pose serious risks for financial systems. However, this issue is outside the scope of the report.

13. We did not do a comparative analysis of the levels and relative merits of minimum capital standards of clearing organizations in the different markets. This is not a Working Group issue and is outside the scope of our report.

14. The Working Group thought that the adequacy of clearing member guarantee fund contributions, the liquidity of guarantee funds, and centralized collection and availability of pay and collect information were worthy of examination in the futures markets. We consider these risk-management issues.

15. Loss sharing rules were not identified by the Working Group as an area of concern. It is thus outside the scope of our report.

16. We agree that revised settlement bank agreements and intraday pays and collects were not sufficiently highlighted in the previous draft. We have added a section on these issues on p. 42 of our report.

17. The Working Group focus was on clearing member credit, not clearing organization credit.

16. We have modified the text on p. 47 to mention CME's opposition to futures-style margins for securities options.

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Related GAO Products

Financial Markets: Preliminary Observations on the October 1987 Crash
(GAO/GGD-88-38, January 1988).

Developments Since the Market Crash of October 1987 (GAO/T-GGD-88-33,
April 1988).

Financial Services Industry Issues (GAO/OCG-89-4TR, November 1988).

Financial Markets: Status of Computer Improvements at the New York
Stock Exchange (GAO/IMTEC-88-35, April 1988).

Securities Regulation: Securities and Exchange Commission Oversight of
Self-Regulation (GAO/GGD-86-83, September 1986).

Securities and Futures: How the Markets Developed and How They Are
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