10 Years After: Regulatory Developments in the Securities Markets Since the 1987 Market Break

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Abstract:

It has been almost ten years since uncertainty, panic, and confusion wrested control from the forces of supply and demand and sent the U.S. securities markets plummeting. After much review, discussion, and analysis, it is widely agreed that certain aspects of the financial system contributed to that event. Since October of 1987, many reforms have been implemented to address the weaknesses in the system that were highlighted by the 1987 Market Break. They include, among others, the implementation of circuit breakers, the approval of the Order Execution Rules, the reduction of the standard settlement time frame to T+3, the conversion to a same-day funds settlement system, the initiation of programs that regularly test the capacity of the market's automated systems, the augmentation of firms' capital levels, and the execution of agreements with regulators in other countries that provide for mutual regulatory assistance. The market has improved significantly because these changes have reduced or eliminated risk by improving coordination, by increasing efficiency, by sharing information, or by ensuring sufficient system or capital capacity exists. Nevertheless, every market event is unique. Therefore, it remains important to identify and address new issues before they become problems.

I. Introduction

It has been almost ten years since uncertainty, panic, and confusion wrested control from the forces of supply and demand and sent the U.S. securities markets plummeting. After much review, discussion, and analysis, it is widely agreed that certain aspects of the financial system contributed to that event. Since 1987, many reforms have been implemented to address the weaknesses in the system that were highlighted at that time. This article notes some of the shortcomings of the system in 1987 and discusses how those shortcomings have been, and are continuing to be, addressed. It begins with a short, general review of both the 1987 Market Break and the extreme volatility experienced on October 13 and 16, 1989 (Mini-Break) and summarizes the findings and recommendations of the leading reports concerning those events. The next section identifies some of the most significant regulatory developments in the U.S. markets since those events and explains how those developments are responsive to the recommendations contained in the leading reports. The article then concludes that the industry has adjusted to the issues brought to the forefront in October of 1987 and that the markets are operationally more efficient than they were ten years ago. Each market crisis, however, is unique. Therefore, regulators and market participants must remain committed to continually improving the markets by identifying potential problems and resolving them before they inhibit the smooth operation and functioning of the securities markets.

II. Background

A. The 1987 Market Break

In October 1987, the U.S. securities markets experienced an extraordinary surge in volume and price volatility. The Dow Jones Industrial Average (DJIA) declined 394.25 points in

the two weeks prior to Black Monday. On Black Monday, October 19, 1987, the DJIA declined an additional 508.32 points and, at its low point midday on October 20th, it had declined over 1,000 points (37%) below its August 25, 1987 high of 2746.65. This decline was not limited to the DJIA. Broader indexes also declined. For example, during October of 1987, the Standard & Poor's (S&P) index of 500 stocks (S&P 500) declined 21.8%, and the composite indexes for the American Stock Exchange (Amex), the New York Stock Exchange (NYSE), and the Nasdaq Stock Market declined 21.9%, 27%, and 27.2% respectively. In terms of sheer size, this decline is comparable only to the 34% drop that occurred over six days in October 1929. What made this market break extraordinary, however, was the speed with which prices fell, the unprecedented volume of trading, and the consequent threat to the financial system.

No clear trigger for the 1987 Market Break can be identified. Nevertheless, some feel that catalysts were the release of disappointingly poor merchandise trade figures and the announcement that members of the House Ways and Means Committee were filing legislation to eliminate the tax benefits associated with the financing of corporate takeovers.[1] These events may have provided the impetus for the heavy volume of selling that took place the week before Black Monday. When this selling pressure had not dissipated by the close of trading on Friday, October 16th, a huge overhang of selling pressure accumulated over the weekend and was unleashed on the markets the following week. While this overhang was particularly concentrated among portfolio insurers and a few mutual fund groups, it was further exacerbated by a number of aggressive trading-oriented institutions selling in anticipation of further decline.

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[1] PRESIDENTIAL TASK FORCE ON MARKET MECHANISMS, REPORT OF THE PRESIDENTIAL TASK FORCE ON MARKET MECHANISMS 15 (Jan. 1988).

With the market down 10% on Friday, portfolio insurers' models dictated that at least $12 billion of equities should already have been sold. At the close of trading that day, however, less than $4 billion had been sold. The sell-off in the markets also affected mutual fund groups that had procedures that made it easy for customers to redeem mutual fund shares. The redemption requests received by these funds on Friday and over the weekend far exceeded cash reserves and, thus, required that they sell significant amounts of stocks at the market on Monday. The effects of this overhang were intensified by aggressive trading-oriented institutions. Understanding the strategies and issues facing those institutions, these traders recognized the situation as an opportunity to profit by selling in anticipation of the forced selling by portfolio insurers and mutual funds and then later repurchasing the securities at lower prices.

1. **Black Monday**

As anticipated, there was extraordinary selling pressure at the opening on October 19, 1987. Both the Major Market Index (MMI) futures and the S&P 500 futures opened down under heavy selling pressure by portfolio insurers. The inordinate selling pressure in the equities market resulted in massive order imbalances. As a result, many NYSE specialists did not open their stocks during the first hour. The reported levels of the S&P and DJIA indexes thereafter reflected stale Friday closing prices for the large number of stocks that had not yet been opened. This gave index arbitrageurs the impression of an apparent record discount for futures relative to stocks. Based on this apparent discount, index arbitrageurs entered sell-at-market orders through the NYSE's automated order routing system (DOT), planning to cover these positions with later purchases of futures at lower prices. When stocks subsequently opened at sharply lower levels, in line with the prices at which futures had opened earlier, the index arbitrageurs realized they

had sold stock at prices lower than expected and, as a result, rushed to cover their positions through purchases of futures. By 11:00 a.m., futures were at a premium, which marked the beginning of an hour long rally in the stock market.

Portfolio insurance sales overwhelmed the rally around 11:40 a.m. Between then and 2:00 p.m., the DJIA fell almost 9%, with over half of this decline occurring after rumors began circulating that the NYSE might close.

Around 2:00 p.m., selling pressure in the stock market eased as concerns about delays in DOT and the consequent ineffective execution of basket sales caused index arbitrage to slow. Although this briefly relieved selling pressure in the stock market, the absence of index arbitrageurs in this market eliminated the primary mechanism linking futures market prices and stock market prices. As a result, the continued, heavy futures selling by portfolio insurers, combined with the withdrawal of futures market buying support by index arbitrageurs who were unwilling to sell stock through DOT, led to a discount of 20 index points in the S&P 500 futures contract. This large discount was viewed as indicating the future direction of the stock market and, thus, discouraged potential purchasers of stocks. With the supply of buyers evaporating quickly, the stock market went into free-fall—the DJIA sank almost 300 points in the last 75 minutes of stock trading.

By the close of trading, the DJIA had fallen 508 points, almost 23%, on volume of 604 million shares worth just under $21 billion, and the S&P 500 futures contract had fallen 29% on total volume of 162,000 contracts, valued at almost $20 billion. Notably, the record volume recorded this day was concentrated among relatively few institutions. In the stock market, the

top four sellers alone accounted for 14% of total sales. In the futures market, the top ten sellers accounted for roughly half of the non-market maker total volume.

2. The Day After

The Tokyo and London stock markets declined dramatically overnight, falling almost 15%. In the U.S., the Federal Reserve Board issued a statement just before the equity market's opening that it would provide the needed liquidity to the financial system. This statement appeared to have a positive effect because both the stock and futures markets opened with dramatic rises—the DJIA rose just under 200 points in the first hour, and the S&P 500 contract opened up 10% at 223. Buying pressure in the futures market came both from trading-oriented institutions who wanted to buy the market but had reservations concerning the speed with which they could get executions on the NYSE and from traders seeking to close out short positions after hearing rumors about the financial viability of the Chicago Mercantile Exchange's (CME) clearing house.

The rally in the futures market ended abruptly around 10:00 a.m. due to heavy selling by portfolio insurers and traders. The futures contract quickly moved to an enormous discount (as large as 40 points at times) as the futures market went into free-fall, plummeting 27% between 10:00 a.m. and 12:15 p.m. Contributing greatly to this free-fall was the lack of index arbitrage buying which would normally have been stimulated by the huge discount of futures to stock. The NYSE had prohibited member firms from using the NYSE's order routing system to effect index arbitrage transactions in an attempt to avoid potentially long delays in the execution of public investors' orders. Thus, similar to Monday afternoon, the primary linkage between the two markets had been disconnected.

The stock market ran out of buying support by midmorning and began to follow the futures market down. Selling pressure was widespread, much of it from mutual funds who were dealing with redemptions, portfolio insurers who were switching from selling futures to selling stocks, and some index arbitrageurs. In addition, the large discount between futures and stocks served as a signal causing many investors to worry that further declines in the stock market were imminent.

The Chicago Board Options Exchange (CBOE) suspended trading at 11:45 a.m. because a significant number of NYSE stocks that constituted the options index were not trading. Similarly, the CME announced a trading suspension at 12:15 p.m. in reaction to individual stock closings on the NYSE and a rumor concerning the imminent closing of the NYSE itself. The trading halts on the CBOE and CME allowed the equity market to rebound briefly beginning around 12:30 p.m. First, it eliminated selling pressure that resulted from portfolio insurers who were authorized only to sell futures. Second, buy side interest increased because there was no longer a cheap futures alternative to buying stock. Finally, the negative signal associated with the futures discount was eliminated. The stock market rose 125 points in the following 45 minutes.

When the futures market opened just after 1:00 p.m. at a seventeen point discount, the DJIA began to slide again—losing almost 100 points over the next 30 minutes. The fall in the equity market continued until buyback announcements made early in the afternoon by a number of blue chip companies began to influence the market. The DJIA gained 170 points between 2:00 p.m. and 3:30 p.m. and, after a decline in the last 30 minutes induced by program sales, the DJIA closed with a net gain for the day of slightly over 100 points.

3. The Leading Reports Concerning the 1987 Market Break

In the wake of this decline, numerous studies were conducted to determine what happened, why it happened, and what, if anything, could be done to avoid a recurrence. Chief among the studies were those of the Presidential Task Force on Market Mechanisms, the Securities and Exchange Commission, and the Presidential Working Group on Financial Markets.

a) Report of the Presidential Task Force on Market Mechanisms

In response to the extraordinary events of October 1987, the President created a Task Force on Market Mechanisms (Task Force) on November 5, 1987. The purpose of the Task Force was to:

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

The Task Force issued its report, known as the Brady Report, two months later.

The Brady Report set forth six observations. First, reactive selling by institutions blindly following portfolio insurance strategies played a prominent role in the market break. Second, in response to a large number of redemption requests, a few mutual funds sold stock without regard to price and, thus, their behavior looked much like that of portfolio insurers. Third, some aggressive trading-oriented investors contributed to the market break when they seized the profit opportunity presented by the predictable forced selling by the aforementioned institutions. Fourth, much of the selling pressure was concentrated in a handful of large investors. Fifth, the

markets for stocks, stock index futures, and stock options constitute one market, linked by financial instruments, trading strategies, market participants, and clearing and credit mechanisms. Finally, there were periods when the linkage between the stock and futures markets became completely disconnected, leading to a free-fall in both markets.

The Task Force concluded that the chief lesson to be learned from this experience was that intermarket issues need to be coordinated. Accordingly, the Task Force recommended that:

(1) circuit breaker mechanisms (such as price limits and coordinated trading halts) should be formulated and implemented;

(2) a single mechanism should be developed for clearing stocks, stock index futures, and stock options thereby facilitating the smooth settlement of intermarket transactions, allowing intermarket exposure to be assessed accurately, and removing inhibitions on the collateralization of intermarket positions;

(3) information systems should be established that incorporate information regarding the trade, time of the trade, and the name of the ultimate customer in every major market segment so that developing problems can be diagnosed, potentially damaging abuses can be uncovered, and the nature and cause of a market crisis can be identified;

(4) margins on stock index futures should be made consistent with those for professional market participants in the stock market, including cross-margining and margins resulting in roughly equivalent risk and leverage between the two market segments to ensure consistent intermarket public policy objectives concerning leverage and speculation; and

(5) a single agency should coordinate these critical regulatory issues because they have an impact across related market segments and throughout the entire financial system.

In addition, the Task Force identified several issues that warranted review by the appropriate authorities. Specifically, the Task Force suggested that the subject of short selling be reviewed from an intermarket perspective because the sale of a futures contract ultimately resulting in the sale of stock in the stock market may be viewed as inconsistent with the intent of Rule 10a-1 under the Securities Exchange Act of 1934 (Act) regarding short sales. The Task Force also suggested that the potential problems associated with front running in the same or different marketplaces be reviewed from an intermarket perspective. With regard to NYSE specialists, the Task Force recommended that the required capital levels be reviewed and that the NYSE examine the performance of some of its specialists. Finally, in those cases where there are serious order imbalances, the Task Force stated that consideration should be given to favoring public customer orders over institutional and other proprietary orders and that the specialist's book be made public.

b) 1987 Market Break Report

The Chairman of the Securities and Exchange Commission (SEC or Commission) instructed the Commission's Division of Market Regulation (Division) to conduct a comprehensive study of the causes, effects, and regulatory ramifications of the 1987 Market Break. Recognizing the futility in attempting to identify the precise combination of investor psychology, economic developments, and trading strategies that caused the precipitous decline, the Division instead sought to reconstruct the relevant trading activity and analyze how the trading systems for stocks, options, and futures may have contributed to the speed and depth of

the decline. The Division issued a comprehensive report in February 1988 (1987 Market Break Report). In this report, the Division analyzed and made a number of recommendations concerning such topics as: the effects of derivative products; exchange specialists; capital adequacy; issuer repurchase activity; and the operational performance of the exchanges, the options markets, the OTC market, and the clearance and settlement system.

(1) Effects of Derivative Products

Although the Division concluded that futures trading and strategies involving the use of futures were not the sole cause of the decline, it did find that the existence of futures on stock indexes and the use of various trading strategies involving program trading were a significant factor in accelerating and exacerbating this market break. The Division also identified three trends resulting from trading in derivative index products. First, that stock index futures had supplemented and often replaced the secondary market as the primary price discovery mechanism for stocks. Second, that the availability of the futures market had spawned institutional trading strategies that greatly increased the velocity and concentration of stock trading. Third, that the resulting increase in index arbitrage and portfolio insurance trading in the stock market had increased the risks incurred by stock specialists and had strained, and at times exceeded, their ability to provide liquidity to the stock market.

In order to address these developments, the Division recommended that the Commission and the NYSE study the feasibility of creating a single NYSE specialist post where actual market baskets could be traded. The Division also recommended that the leverage of derivative products be brought in line with the leverage of stock products by examining the feasibility of physical settlement for index products and by reviewing with the Commodity Futures Trading

Commission (CFTC) whether it would be beneficial to increase the margin requirements for futures. In addition, the Division called for greater coordination of stock and derivative index products trading by restricting the opening of index futures and options contracts until a set percentage (in value) of the stocks comprising the index commenced trading and by halting trading in derivative products whenever trading in an identified percentage of the stocks composing the index has been halted.

The Division also noted that the absence of short sale restrictions in the derivatives markets, coupled with the greater leverage of futures, could present the potential for greater speculative selling than could occur in the stock market. Moreover, selling activity could often be transferred to the stock market through index arbitrage without being subject to the Commission's short sale rule. Therefore, the Division recommended that the Commission review whether reducing price volatility should remain a goal of the short sale rule and, if so, whether steps should be taken to increase its effectiveness.

Finally, the Division noted difficulties in reconstructing the Market Break due to the lack of a system that maintained easily accessible records of index-related trading. Accordingly, it recommended revisiting the issue of developing a system, similar to the CFTC's large position reporting system, for rapidly identifying large traders in the stock market. Additionally, the Division believed it would be appropriate to consider how to integrate program trade reporting within the current systems of last sale reporting because there was no regularized reporting of program trades.

(2) Exchange Specialists

Overall, the Division found that the specialists appeared to conform with their affirmative and negative obligations concerning the maintenance of a fair and orderly market in their specialty stocks. Nevertheless, the Division believed that the performance of some specialists was questionable and warranted further exchange scrutiny. In light of this finding, the Division recommended that the Amex and the NYSE implement objective performance standards.

The Division also believed that the minimum net capital requirements imposed by the exchanges on their specialists did not reflect the actual capital needed to ensure the maintenance of fair and orderly markets in different types of securities. Therefore, the Division recommended that the exchanges consider revising the minimum financial requirements imposed on specialists, as well as explore the possibility of requiring all "self-clearing" specialists to maintain a line of credit with a bank or other lending institution to ensure that specialists have access to additional financing during periods of market turbulence.

(3) Capital Adequacy

Although only one large firm needed to be liquidated under the Securities Investor Protection Act as a result of the 1987 Market Break, the Division made three recommendations concerning the net capital requirements for broker-dealers. First, that the minimum levels of net capital required of broker-dealers who carry customer accounts, of broker-dealers who introduce customer accounts on a fully-disclosed basis to another broker-dealer, and of broker-dealers who are market makers in OTC securities should be reexamined. Second, that the net capital rule should be reviewed to determine whether broker-dealers should be required to take haircuts for their securities-related futures positions that are independent of margin requirements. Third, the level and structure of haircuts for equity securities should be reexamined.

The Division also analyzed bank lending practices during the week of the Market Break. The Division cited with approval the efforts of the Federal Reserve Board and the Federal Reserve Bank of New York to encourage major banks to continue their prudent financing of securities firms to avoid the potential for a liquidity gridlock. In order to reduce risks associated with any future market break, the Division believed that the self-regulatory organizations (SROs) should discuss with their members the desirability of establishing diverse borrowing relationships with a number of banks, as well as the feasibility of obtaining more committed lines of credit than currently existed.

The Division also analyzed the capital of options market makers. It found that some options clearing firms had experienced severe liquidity problems as a result of intra-day variation margin calls, difficulties in financing stock and options positions through banks, problems with returned stock loans, and market makers' withdrawals of equity from their accounts. Thus, the Division believed that the following issues should be explored: (1) whether market makers should be required to maintain minimum equity in their accounts equal to the perceived risks in their short positions; (2) whether there should be concentration haircuts for short options positions, either on a market maker by market maker basis or on a total clearing firm basis; (3) whether the net capital provision providing that aggregate market maker haircuts cannot exceed ten times the clearing firm's net capital for a period exceeding five consecutive business days should be amended to reduce the five day grace period, (4) whether to eliminate the provision of the net capital rule that allows some options market makers that are not exempt from the net capital rule to avoid, under certain circumstances, the haircuts on their options positions; (5) whether self-clearing options market makers should be permitted to carry the accounts of

independent market makers without having the same net capital requirements as other firms; and (6) whether there should be limitations on the withdrawal of market makers' equity from their accounts.

(4) Issuer Repurchase Activity

Consistent with the Brady Report's findings, the Division found the announcement and subsequent activity of stock repurchase programs by S&P 500 companies during the week of October 19 to 23 to have had a favorable impact on price performance. The Division also found that most issuers complied with Rule 10b-18, but the treatment of block purchases under that rule may have effectively negated the volume limitation of many securities. Therefore, the Division stated that it would continue its review of the impact of issuer repurchases and the possible need for amendments to Rule 10b-18.

(5) Exchange Operational Performance

In reviewing order entry and routing procedures, the Division specifically noted that many broker-dealers were nearly overwhelmed by the surge in order flow and that at least one major service bureau suffered operational problems that resulted in delays in order routing and execution reporting for a large number of firms. Thus, the Division recommended that a review of operational capacity be included in broker-dealer examinations.

The Division also noted that some exchanges' order routing and execution systems caused significant delays in executing trades. One system suffered a complete overload, losing both orders and trade reports. The Division stated that these problems underscored the need for the markets to inform member firms in a timely fashion of any problems and delays in their systems. In addition, the Division emphasized that coordination among the markets needed to be

improved, especially when systems are down and order flow may have to be sent to another market. With regard to the Intermarket Trading System (ITS), the Division also found that substantial order routing delays occurred and that the ITS plan failed to provide for a preopening notification routine after trading imbalance halts, as well as a general lack of communication among the participating exchanges.

(6) Options

In analyzing the options markets, the Division found that they experienced: (1) excessively lengthened and delayed opening rotations; (2) numerous and protracted trading halts; (3) pricing anomalies in the premiums charged for index options contracts, particularly put contracts, that were inconsistent, highly variable, and often unrelated to price movements in the underlying securities; (4) a general decline in market maker participation which, in turn, resulted in discontinuous and illiquid options markets; and (5) limited utilization of small order execution systems for options due to inadequate market maker participation and exchange imposed restrictions.

Thus, the Division recommended greater coordination of trading between options for stock indexes and the underlying component securities. The Division also directed the exchanges to examine methods to speed up opening rotations and to review their rules governing market maker participation in small order execution systems.

(7) OTC Market

The Division noted several problems that occurred in the OTC market. First, there were an inordinate number of instances of locked and crossed markets. Second, large numbers of delayed trade reports resulted in an inability to efficiently price, causing leading market makers

to withdraw from the market. Finally, the design of various systems interacting with locked and crossed markets resulted in a complete shutdown of the Small Order Execution System (SOES) and other proprietary small order execution systems. The Division believed these factors led to a significant reduction in market maker participation in Nasdaq.

In response, the Division recommended that the Commission and the National Association of Securities Dealers (NASD) reconsider the need to require market makers to include realistic sizes as part of their quotations. The Division also suggested that the NASD consider additional steps that would ensure the ability of market makers to execute electronically against other market makers' quotations during high volume periods.

(8) Clearance and Settlement

Although clearing agencies, broker-dealers, and securities markets cooperated successfully to compare, clear, and settle an unprecedented level of sustained daily trading volume during the Market Break, the Division believed that two areas needed improvement—post-execution trade processing and clearing agency safeguards against member default. The Division encouraged the NYSE, NASD, and Amex to accelerate efforts to compare all trades on trade date. The Division also suggested that the clearing agencies enhance member monitoring systems to enable the clearing agencies to obtain better and more timely information about members' financial strength, activity in other markets, and customer activity. In light of the record volatility, the Division also recommended the reassessment of the basic volatility assumptions and margin formulas. In addition, the Division encouraged the Options Clearing Corporation (OCC) to reevaluate the manner and timing of variation margin calls to determine whether it was possible to obtain earlier warning of, and protection from, potential member

insolvency, especially for volatility occurring late in the trading day near the close of banking hours. Finally, the Division believed that the OCC, the commodities industry, and regulators should discuss ways to coordinate margin requirements and settlements for entities involved in securities options and futures market activity.

(9) International Issues

The Division found that the major world markets responded quickly and dramatically to movements in other major markets and that, for the most part, U.S. markets led foreign markets. Moreover, the Division found that the other major markets were uniformly besieged by enormous selling pressure and that those markets had to address many of the same issues that occurred in the U.S. markets. The Division also noted that foreign investor activity did not appear to have had a disproportionate effect on the U.S. market. Given the obvious interdependence of the markets on one another, the Division recommended that regulators work together to develop trading and clearance and settlement linkages; international trade and quote reporting mechanisms; adequate financial oversight systems; and effective enforcement and surveillance arrangements.

c) Interim Report of the Working Group on Financial Markets

On March 18, 1988, the Working Group on Financial Markets (Working Group) was established by the President to provide a coordinating framework for consideration, resolution, recommendation, and action on the complex issues raised by the market break in October of 1987. The Working Group was, and still is, composed of the Chairman of the Securities and Exchange Commission, the Chairman of the Commodity Futures Trading Commission, the

Chairman of the Board of Governors of the Federal Reserve System, and the Secretary of the Department of the Treasury.

In addition to agreeing with the Brady Report's conclusion that the stock, options, and futures markets are closely linked, the Working Group made a number of findings and set forth recommendations in its May 1988 Interim Report (Interim Report). The Working Group found that the size and speed of the decline on October 19, 1987 was exacerbated by a number of factors: (1) volume that overwhelmed the trade processing capacity of many systems; (2) many participants pulling back from the markets because of fear and shock, and because of uncertainties and concerns regarding the accuracy and timeliness of information, counterparty solvency, credit availability, and de facto, ad hoc market closures and other market disruptions; and (3) significant stress in the credit, clearing, and settlement area. The primary goals of the Working Group, therefore, were to address the major sources of these uncertainties and to focus on reducing systemic risk. In this regard, the Interim Report contained recommendations concerning circuit breakers, changes to the credit, clearing, and settlement system, margins, contingency planning, and future coordination efforts regarding intermarket issues.

(1) Circuit Breakers

The Working Group recommended the implementation of coordinated trading halts and reopenings for large, rapid market declines that threaten to create panic conditions. The Working Group suggested that all U.S. markets for equity and equity-related products — stocks, individual stock options, and stock index options and futures — should halt trading for one hour if the DJIA declined 250 points from its previous close and for two hours if it declined 400

points below its previous day's closing level. In addition, the Working Group believed that reopening procedures similar to those utilized for "Expiration Fridays" should be used.

(2) Credit, Clearing, and Settlement

In the credit, clearing, and settlement system area, the Working Group recommended that: (1) the obligations of participants in the clearing and settlement process should be clarified; (2) measures to enhance the capacity of existing systems to ensure timely flows of funds should be undertaken; (3) certain initiatives to reduce cash transfers and simplify settlement systems should be explored. (*e.g.*, futures style margining for options, netting of cash flows on a contractual basis, shortening the five-day settlement process for securities transactions, and integrated clearing); and (4) consideration should be given to refining the relevant legal framework concerning the transfer, delivery, and pledge requirements for options and uncertificated securities and the bankruptcy provisions relevant to securities and commodity brokers.

(3) Margin

The Working Group was unable to develop a consensus concerning margin requirements. The Group did agree that the minimum margin requirements in place at the time provided an adequate level of protection for the financial system, although these requirements did not cover all possible price movements. The Working Group believed that raising margin to levels that covered all possible price movements would unduly increase costs to market participants, harm liquidity, and impede the efficiency of the markets. The Working Group also agreed that the prudential maintenance margin required for carrying an individual stock should be significantly higher than the margin required for a futures contract because stock indexes have less price

variability than individual stocks and because the payment period for margins in the futures market is shorter than the period for stocks.

The Group was unable to agree as to whether or not it would be appropriate or effective to raise margins above prudential levels in an attempt to reduce leverage or dampen volatility. Furthermore, the Working Group could not agree on the appropriate scope and form for federal oversight of margin.

(4) Contingency Planning

The Working Group believed that contingency planning should ensure that regulatory agencies and SROs have systems in place that would allow them to quickly identify emerging problems and to react appropriately in the event of a market crisis. Thus, the Working Group believed that the channels of communication between the staffs of the respective regulatory agencies should be enhanced.

(5) Regulatory Coordination

In contrast to the Brady Report's observation that a single agency handle the few, critical intermarket issues that exist, the Working Group stated that continuation in the then-existing configuration would be more effective and less disruptive than a more formal, legislated structure.

B. The 1989 Mini-Break

On Friday, October 13, 1989, the U.S. securities markets again experienced significant price volatility. The DJIA fell 190.58 points (6.91%), 87% of which occurred within the last 90 minutes of trading. Trading the following Monday was tumultuous. The DJIA fell an additional 63.16 points (2.46%) in a steep sell-off during the first 40 minutes of trading and then suddenly

swung upward resulting in the market closing up 88.12 points (3.43%) from the October 13, 1989 close. Although the events of October 1987 and October 1989 are not fully comparable, the high volume and price volatility provided an opportunity for the Division to analyze and assess the actions taken by the U.S. securities markets in response to the 1987 Market Break. The Division examined the performance of the exchange markets, the options markets, the OTC market, and the clearance and settlement system and found, in general, that performance had substantially improved.

1. The Exchange Markets

Upon examining the exchange markets, the Division found that the vast majority of specialists performed well; however, there were instances in which some specialists failed to perform adequately. For example, the Division noted that some specialists were net sellers when the prices of their stocks were declining. Due to the disparity in specialist performance, the Division recommended that objective performance standards for evaluating specialists be implemented. In addition, the Division recommended that the exchanges take further steps to ensure that specialists have sufficient capital, including an analysis of the feasibility of security-specific capital requirements.

After examining the market events of October 1989, the Division concluded that the exchanges' operational performance improved significantly over that experienced during the 1987 Market Break. However, in light of the minor delays encountered, the Division emphasized the need for each exchange to develop and implement regular, comprehensive stress testing to ensure that customer orders would be handled in a fair and efficient manner, even during periods of market stress.

2. The Options Markets

The Division found that market maker performance in the options markets was much improved over that of 1987. Opening rotations for index options were shorter, and automatic order execution systems operated without interruption. However, due to trading halts (and an exercise suspension for the S&P 100 index options), most index options were unavailable during the late afternoon of October 13, 1989. Thus, the Division recommended that the options exchanges: (1) consider developing procedures to reopen an index option without going through a rotation after a trading halt; (2) examine whether it would be appropriate to replace their discretionary authority to declare a trading halt in their index options when the SPX future hits the 12 point limit with some type of fixed price limit or with an automatic trading halt; (3) review their policies on exercise suspensions; (4) consider developing rules to define and specifically measure market maker obligations and performance standards during volatile market conditions; (5) develop guidelines for market maker participation in their automatic execution systems to ensure adequate participation during periods of market stress; and (6) examine ways of further shortening their opening rotations.

3. The OTC Market

The Division found that the OTC market performed reasonably well. The events of the 1989 Mini-Break did, however, reveal certain flaws in the Nasdaq system, the most significant of which related to the operation of SOES, unexcused market maker withdrawals from Nasdaq, and the minimal use of SelectNet.

After analyzing SOES system data, the Division determined that trading volume on October 16th resulted in a high rate of quotation changes, creating a backlog that could not be transmitted quickly enough from the receiving Nasdaq computer to the computer that operated

SOES. This backlog temporarily shutdown SOES, delayed execution of SOES orders, and caused a number of orders to be executed at stale quotes.

The Division was also concerned that, notwithstanding the 20 day reentry penalty for unexcused withdrawals, market makers again withdrew from a significant number of market making positions, as they did during the 1987 Market Break. Although the total number of market maker withdrawals on October 16, 1989 was about half the withdrawals in 1987, the Division noted that the number still was extremely high.

Finally, market maker use of SelectNet was minimal. Since the system was designed to be an alternative for negotiations and transactions when heavy volume made telephone communication difficult, the Division expected more market makers to use SelectNet.

Accordingly, the Division recommended the following improvements to the OTC market: (1) that the NASD strengthen its procedures, through enhanced testing and monitoring, to ensure that system capacity is maintained at the highest level; (2) that individual firms with in-house trading systems review the capacity of their systems and establish priorities to ensure order processing during heavy volume periods; (3) that the NASD review with those market makers who withdrew from the market their reasons for the withdrawals and determine whether additional safeguards were necessary to prevent such abuse; and (4) that the NASD consider further enhancing SelectNet to include an automatic execution feature that would operate against a preferenced market maker that failed to respond to an order in a timely fashion.

4. Clearance and Settlement

The Division concluded that the improvements implemented since October 1987 in the comparison, clearance, and settlement process helped clearing organizations handle the increased

volatility and accompanying surge in volume on October 13 and 16, 1989 without difficulty. Nevertheless, the Division noted its intermediate goal was to ensure that the markets would provide routine comparison of all trades by T+1 and that its longer-term goal was same-day, floor-derived comparison of all trades.

In addition, the Division noted that, as in 1987, the increased volatility had its greatest effect on the clearance and settlement of securities options, particularly options on stock indexes. Therefore, the Division believed that OCC should consider raising margins even higher than their 1989 levels. It also believed that the OCC should explore ways to be aware of the exposure created by positions in related markets and its members' financing arrangements that could materially affect the ability of members to meet their obligations on a timely basis. The Division also expressed the opinion that a coordinated settlement time among the OCC, the CME, and the Chicago Board of Trade (CBOT) would provide significant benefits to the clearance and settlement system.

III. Development of the Market

There have been a number of regulatory developments designed to address the systemic stress experienced during the 1987 Market Break. These developments have typically sought to reduce or eliminate risk by bolstering the effectiveness of the financial system's infrastructure. They have been applied to many different segments, including the structure of the market, automation, the clearance and settlement process, required capital levels, and international coordination. This section highlights the most significant enhancements—a more complete itemization is contained in the Appendix.

A. Market Structure

It is widely accepted that the structure of the financial system in 1987 greatly contributed to the confusion and attendant rapid decline in the equities, futures, and options markets. A prime example was the lack of coordination among the different markets. Although trading strategies and products that linked these markets were commonplace, the regulatory framework had not changed to properly accommodate them. Thus, when the system was placed under extreme stress due to unanticipated, heavy selling pressure, chaos resulted when the system prevented the efficient use of new products and strategies. Since that time, the structure of the market has changed significantly to address the vulnerabilities highlighted by the 1987 Market Break. The most significant of these changes has been the marked improvement in interagency and intermarket coordination, the implementation of market controls, including cross-market trading halts, and the increased transparency provided by the Order Execution Rules.

1. Improved Coordination

Coordination has improved considerably since the 1987 Market Break. In terms of interagency coordination, the Working Group on Financial Markets was established on March 18, 1988 to help coordinate financial policy. The principals of the Working Group, which meets regularly every few months, are the Secretary of the Treasury and the Chairmen of the Federal Reserve Board, the SEC, and the CFTC. In addition, the head of the President's National Economic Council, the Chairman of his Council of Economic Advisers, the Comptroller of the Currency, and the President of the New York Federal Reserve Bank frequently attend Working Group sessions. The Working Group provides a framework for coordinating consideration, resolution, recommendation, and action regarding complex issues facing the U.S. financial

system. Among other matters, the Working Group has developed coordinated contingency plans in the event of a financial crisis.

Coordination among the different markets has also improved. Shortly after the 1987 Market Break, the Intermarket Communications Group, which is comprised of representatives from the equity and options markets, and from several of the futures exchanges, created a communication system called the Information Network for Futures, Options, and Equities (INFOE) using dedicated voice transmission lines. This system links the SROs for the major securities and futures markets, as well as the SEC and CFTC, and is used during periods of market stress to simultaneously disseminate among the equity, options, and futures markets the latest information available concerning: (1) the approach, implementation, or suspension of circuit breaker mechanisms; (2) securities experiencing delayed openings or trading halts; (3) order imbalances in NYSE securities; and (4) operational problems concerning the Consolidated Quotation System (CQS), Options Price Reporting Authority (OPRA), ITS, exchange order routing or order execution systems, or other exchange systems. In 1994, a similar teleconferencing system was implemented to link the SEC Chairman to the leaders of the nation's securities markets and clearing organizations. This improved interagency and intermarket coordination should help to minimize the uncertainty and improve communication during a sudden, sharp market decline.

2. Market Controls

a) Circuit Breakers

Circuit breakers are designed to substitute unplanned, ad hoc trading halts with halts that are planned and coordinated, but do not increase the overall frequency of such disruptions in

trading. There are three benefits that market-wide circuit breakers are intended to provide. First, they limit credit risk by providing a brief respite amid frenetic trading, thereby allowing parties to ensure that everyone is solvent. Second, they facilitate price discovery by providing a "time-out" to publicize order imbalances in order to attract value traders. Third, they cushion the impact of market movements that would otherwise damage a market's infrastructure.

The perceived disadvantages associated with circuit breakers are their potential hindrance of trading and hedging strategies and the fact that they lock investors into a position preventing them from exiting the market. In one way or another, however, circuit breakers are inevitable in a tumultuous market. In 1987 and 1989, they took the form of clogged order processing systems; ad hoc trading halts in individual stocks, options, and stock index futures; jammed communications systems; and some less than responsive specialists and market makers. The Brady Report detailed the damage caused by such unanticipated trading halts. For example, when the NYSE's DOT system was rendered ineffective by an overwhelming surge in volume, index arbitrageurs, wanting to avoid this source of risk, withdrew from the market. Their withdrawal deprived the index futures market of an important source of buying power. While this appeared to briefly benefit the equities market, it contributed to the development of a large futures discount which placed additional downward pressure on stock prices. Thus, it may be preferable to have orderly, coordinated circuit breakers that provide the markets and their participants with a "time out" whenever a large, rapid market decline threatens to create hysteria.

Although various trading halts existed prior to 1987, there were no coordinated cross-market trading halts. Hence, the leading reports called for the implementation of trading halts and reopenings that were coordinated across the markets for stocks, stock index futures, and

options. Such circuit breakers were implemented in October 1988 and recently amended as follows: currently, if the DJIA declines by 350 points from its previous day's close, a 30 minute market-wide trading halt is imposed. If the DJIA declines 550 points that day, an additional one hour circuit breaker is triggered. Similar provisions exist in the futures market, except the circuit breakers in that market are based on the price level of the SPX futures contract.

b) Emergency Authority

The Market Reform Act of 1990 provided the Commission with additional authority to issue rules on an emergency basis and, under extreme conditions, to order market-wide trading suspensions, as long as the President does not object. This authority allows the Commission to move quickly and decisively to contend with sudden, severe market conditions.

c) Other Volatility Procedures

Other volatility procedures have also been instituted in the markets since 1987. The stock index futures markets have adopted intra-day and daily price limits designed to slow a severe decline. In addition, the NYSE has implemented procedures to address program trading during sharp market swings. If the DJIA moves up or down 50 points from the previous day's closing value, NYSE Rule 80A(c) (Collar Rule) requires that program orders to buy or sell stocks as part of an index arbitrage strategy must be entered with directions to have the orders executed in a manner that stabilizes prices. Additionally, if the S&P 500 futures contract declines 12 points (roughly equivalent to one 100 points in the DJIA), the NYSE implements its "side-car" procedures to temporarily route program orders to separate electronic files to assess possible order imbalances.

3. Order Execution Rules

The approval of the Order Execution Rules in September of 1996 may represent the most significant change in the structure of the market since the 1987 Market Break. In general, these rules require that market makers and specialists display customer limit orders that improve OTC market makers' and specialists' quotes or add to the size associated with such quotes. In addition, they require OTC market makers and specialists that account for more than 1% of the volume in any listed security to publish their quotations for that security. Furthermore, these parties are prohibited from quoting one price publicly and a different price privately in an electronic communications network (ECN).

These changes primarily reduce systemic risk by enhancing transparency. In both 1987 and 1989, uncertainty caused some market participants to become reluctant to participate in the market or, in some cases, to withdraw entirely as the market moved downward. Their ability to determine the levels of supply and demand were limited. The Order Execution Rules help to reduce this uncertainty by improving the ability of all market participants to determine the levels of supply and demand that exist. Moreover, the uniform display of customer limit orders encourages tighter, deeper, and more efficient markets. Indeed, the most current data from the NASD concerning the Nasdaq stocks already phased-in indicates that the market and investors are benefiting from this structural change—spreads have declined by 30%, intraday volatility has declined, and both the average aggregate quote size and the average number of market makers per stock has increased.

B. *Degree of Automation*

Trading volume has increased steadily and dramatically since the early 1960s. This increase accelerated after 1981 and has exploded in recent years. For example, the average daily volume of trading on the NYSE has grown from 161 million shares in 1990 to 412 million shares in 1996. The increase in trading volume in the Nasdaq market has been just as dramatic. The average daily trading volume in 1990 was 132 million shares and, in 1996, it ballooned to 544 million shares per day. In order to accommodate this growth in trading activity, the markets have replaced manually intensive order routing and execution procedures with automated systems that permit electronic routing and execution of certain orders. These automated systems have successfully increased the capacity of U.S. securities markets and have improved the efficiency and timeliness with which transactions are executed. In addition, the markets have implemented automated systems to enhance the dissemination of transaction and quotation information and the comparison of trades prior to settlement.

This increased reliance on automated systems, however, makes it imperative that they function properly. The magnitude of disruptions in the market that can occur when systems fail to operate smoothly was evident during the market break of 1987 and the mini-break of 1989. To help maintain the proper focus of these systems, the Commission issued two automation review policy statements (ARP I and ARP II).

ARP I, released in November of 1989, set forth the SEC's view that the SROs, on a voluntary basis, should establish comprehensive planning and assessment programs to determine their systems' capacity and potential vulnerabilities. The SEC emphasized that the SRO programs should have three objectives: (1) each SRO should establish current and future capacity

estimates; (2) each SRO should periodically conduct capacity stress tests; and (3) each SRO should obtain an annual independent assessment of whether the affected systems can adequately perform in light of estimated capacity levels and possible threats to the systems.

On May 9, 1991, the SEC released ARP II. This release further refined some of the issues raised in ARP I. In particular, ARP II provided detailed guidance concerning the nature and form that independent reviews should take and set forth a standardized methodology for advising Commission staff of new systems developments and outages.

In connection with the issuance of these policy statements, the Commission implemented its own ARP program which requires Commission staff to meet with the SROs on a regular basis and to review various aspects of their computer operations. In addition, the Commission has conducted spot checks of capacity at major broker-dealers.

This oversight has improved the markets by helping to ensure that they are ready for extremely volatile trading days. Most exchanges now have excess capacity of approximately three times that needed for an average trading session. The NYSE now is averaging 505 million shares per day and reports that its systems could process up to 2.5 billion shares, or five times average capacity. The CBOE is averaging 733,000 contracts per day and has capacity to handle 2 million contracts, or almost three times average capacity. Nasdaq has average volume of approximately 622 million shares per day with a capacity for trading one billion shares without affecting normal system operation.

Likewise, the major broker-dealers' computerized trading systems should now withstand volatile trading days. Major broker-dealers have around two times average capacity. In addition, these systems have on-line performance monitoring that can identify potential bottle-necks and

provide the means to re-route message traffic to alleviate queuing. Moreover, the major broker-dealers utilize capacity modeling and verification models to ensure that their systems remain ahead of projected transaction message growth rates. Ensuring that sufficient capacity in the financial system's order routing and execution systems exists reduces a major source of systemic risk.

C. Clearance and Settlement

The performance of the clearance and settlement system during the 1987 Market Break was called into question by all of the leading reports, as well as by some of the financial industry's regulators. Treasury Secretary Nicholas F. Brady stated that the system was the weakest link in the nation's financial system.[2] Alan Greenspan, Chairman of the Board of Governors of the Federal Reserve System, noted, "This area was identified by the Brady Commission and others after the market break last year as a potential point of vulnerability in the U.S. financial system. The overloading of the . . . clearing systems last October induced breakdowns that dramatically increased uncertainty among investors and likely contributed to additional downward pressures on prices."[3] Gerald Corrigan, President of the Federal Reserve Bank of New York, went so far as to say that "[T]he greatest threat to the stability of the financial system as a whole [during the 1987 Market Break] was the danger of a major default in one of these clearing and settlement systems."[4]

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[2] Securities Exchange Act Release No. 33023 (Oct. 6, 1993), 58 FR 52891 (Oct. 13, 1993) (citing *The Market Reform Act of 1989: Joint Hearings on S.648 Before the Subcomm. on Securities and the Senate Comm. on Banking, Housing, and Urban Affairs*, 101st Cong., 1st Sess. (Oct. 26, 1989)).

[3] *Id.* (quoting Remarks by Alan Greenspan Before the Annual Convention of the Securities Industry Association (Nov. 30, 1988)).

[4] *Id.* (quoting E. Gerald Corrigan, President, Federal Reserve Bank of New York, Luncheon Address: Perspectives on Payment System Risk Reduction, *in* THE U.S. PAYMENT SYSTEM: EFFICIENCY, RISK, AND THE ROLE OF THE FEDERAL RESERVE SYSTEM 129-30 (1990)).

Many reforms designed to address the systemic risk that existed in the clearance and settlement system in 1987 have been implemented. The most significant developments include the reduction of the standard settlement time for broker-dealer trades from five business days to three business days; the adoption of same-day funds settlement; the execution of a series of cross-margining and cross-guarantee agreements among major securities and futures clearing agencies; the significant strengthening of the clearing funds since 1987; and the establishment of systems to assist clearing agencies to better monitor participants' risks and to share critical information with other securities and futures clearing organizations if problems are detected.

1. T+3 Settlement

Although the U.S. clearance and settlement system was among the safest in the world in 1987, record volume and volatility during October of 1987 demonstrated that this area needed further attention. At the behest of former SEC Chairman Breeden, the U.S. Steering Committee of the Group of Thirty formed a task force, chaired by John W. Bachmann, Managing Principal, Edward D. Jones & Co., to review what changes to the clearance and settlement system were necessary, to identify practical solutions, and to propose a reasonable time frame for implementation of each of the solutions developed. This task force, known as the Bachmann Task Force, set forth its findings in its May 1992 report. Its primary conclusion was that "TIME = RISK." Therefore, several of the recommendations cited areas where processing time could be reduced. For example, the Task Force recommended the implementation of an interactive ID process for institutional trades; the settlement of all transactions among financial intermediaries and between financial intermediaries and their institutional clients in book-entry form only and payment for them in same-day funds; and that all new securities be required to be depository

eligible. The Task Force's primary recommendation, however, was that the settlement cycle for corporate and municipal securities be reduced to T+3. In support of this recommendation, the Task Force found that T+3 settlement would result in a 58% reduction in risk to the National Securities Clearing Corporation as compared with the T+5 settlement that existed at the time.

Subsequently, the Commission proposed a rule that would establish three business days as the standard settlement time frame for broker-dealer trades. After reviewing over 1,900 comment letters, the Commission approved the proposal on October 6, 1993, and it became effective on June 7, 1995.

Changing to a T+3 time frame reduced settlement exposure thereby increasing the safety and soundness of the clearance and settlement system. First, at any given point in time, fewer unsettled trades are now subject to credit and market risk, and there is less time between normal trade execution and settlement for the value of those trades to deteriorate. Second, it reduced the liquidity risk among the derivative and cash markets and reduced financing costs by allowing investors that participate in both markets to obtain the proceeds of their securities transactions sooner. Finally, the shorter settlement time frame encourages greater efficiency in clearing agency and broker-dealer operations.

2. Same-Day Funds Settlement System

On February 22, 1996, the industry took a major step in addressing the finality of payments in the clearance and settlement system and the liquidity requirements of clearing members by converting to a same-day funds settlement system. Payment is made in funds that are immediately available and final at the time of settlement. The Same-Day Funds System reduces risk in the clearance and settlement process by simplifying cash management, reducing

existing overnight exposure, and achieving close conformity with payment methods used in derivatives markets, government securities markets, and other markets.

3. Cross-Margining Agreements

Since 1987, OCC has established several cross-margining programs. Currently, OCC participates in cross-margining programs with the Intermarket Clearing Corporation (ICC), the CME, Board of Trade Clearing Corporation, the Comex Clearing Corporation, and the Kansas City Board of Trade Clearing Corporation. These cross-margining programs are designed to increase liquidity and depth to the markets by reducing clearing members' combined daily margin requirements and by reducing the potential for financial gridlock, particularly during volatile markets when clearing organizations may demand additional clearing margin from their members. These programs now utilize participants' end-of-day positions to determine overall combined daily margin requirements.

4. Cross-Guarantee Agreements

Cross-guarantee agreements between clearing agencies generally provide that in the event of a default of a participant common to both clearing agencies, any resources remaining after the failed participant's obligations to one clearing agency have been satisfied will be made available to the other clearing agency. The guarantee is generally limited in that each party guarantees funds to the other only if it liquidates the assets in its control to a net gain and only up to the amount of the net gain. These agreements reduce the systemic risk posed by a common member's default because that member may have positions spread across markets in such a manner that its net asset position at one clearing agency is positive even though its net asset position at another clearing agency is negative. To date, the National Securities Clearing

Corporation (NSCC) has executed cross-guarantee agreements with the Depository Trust Corporation (DTC) and the OCC. Additionally, the MBS Clearing Corporation (MBSCC), the Government Securities Clearing Corporation (GSCC), the Participants Trust Company (PTC), and the International Securities Clearing Corporation (ISCC) have amended their rules to allow them to enter into cross-guarantee agreements with other clearing agencies, including futures clearing organizations.

5. **Liquidity Improvements**

Another prophylactic measure instituted by the clearing agencies since 1987 has been the significant improvement of their liquidity. OCC has increased its total clearing fund deposit to $555 million (up from $454 million in 1987) and its minimum clearing fund deposit for equities to $75,000 (up from $10,000 in 1987). Total margin deposits have increased to approximately $8.5 billion (up from $3 billion in 1987). The initial net capital requirement for membership has been increased from $150,000 in 1987 to $1 million, and the minimum net capital requirement was increased from $75,000 in 1987 to $750,000. In 1987, OCC had only $10 million in unsecured lines of credit. Currently, OCC has secured lines of credit of $150 million and unsecured lines of credit of $20 million.

Similar improvements have been adopted at DTC and NSCC. DTC has increased its total participants fund to over $658 million (up from $227 million in 1987), and its total lines of credit have increased from $60 million in 1987 to $700 million committed today. NSCC has increased its total clearing fund deposit to over $764 million (up from $330 million in 1987). In 1987, NSCC had no lines of credit. At present, NSCC has total committed lines of credit of $400 million.

6. Risk Control Improvements

OCC has developed and implemented a number of other major systems enhancements to reduce risk in the clearance and settlement system including: (1) the Theoretical Intermarket Margin System, which is a sophisticated, risk-based methodology for calculating margin; (2) the Options Automated Settlement Instructions System, which is an electronic notification and approval system for settlement processes; and (3) the Risk Management System, which is a sophisticated risk analysis system designed to help OCC clearing members and exchanges manage the risk of their customers and members in the same manner that OCC manages its risk.

In 1995, NSCC developed the Collateral Management System (CMS) whereby NSCC collects from and provides to participants and other clearing entities information regarding a participant's clearing fund, margin, and deposits at participating clearing entities. CMS helps clearing agencies and their participants to better monitor clearing fund, margin, and other deposits that protect a clearing agency against loss should a member default on its obligations to the clearing agency. The DTC, Philadelphia Stock Clearing Corporation (SCCP), Philadelphia Depository Trust Company (Philadep), GSCC, MBSCC, PTC, and OCC have all received Commission approval to participate in the CMS service.

7. The Securities Clearing Group and the Unified Clearing Group

There have also been a number of initiatives since 1987 to improve cooperation and information sharing among the securities and futures clearing organizations. As part of this effort, the major U.S. securities clearing organizations formed the Securities Clearing Group (SCG) in 1989 and, in 1995, joined with the futures clearing organizations to create the Unified Clearing Group.

The SCG promotes coordinated action among clearing agencies and fosters their ability to identify, address, and minimize the risks and problems common to more than one clearing agency. The key methods utilized are (1) the sharing of appropriate financial, operational, and clearing information with other clearing agencies in an atmosphere of cooperation and (2) the development of uniform procedures for use among clearing agencies.

D. Capital Levels

The Division noted in the 1987 Market Break Report that some market makers and specialists came close to exhausting their buying power or were in jeopardy of failing. While it is unrealistic to expect any one group of market participants to have or commit sufficient capital to offset extraordinary selling pressure, it is critically important that the level of capital in the system is sufficient to absorb the volatility experienced during normal trading situations. After examining this area, all of the leading reports concluded that the minimum capital requirements needed to be reexamined. Although many changes have been instituted to respond to those comments, the most significant developments are increased capital in the system, enhanced ability by the Commission to monitor the financial condition of broker-dealers, and improved customer protection in the event of a broker-dealer's financial failure.

1. Increased Capital

There is more capital available to the financial system today than there was in 1987, which is a result of efforts by both broker-dealers and regulators. Broker-dealers have improved the financial system by increasing their capitalization and by expanding their liquidity. Since 1987, the 15 largest broker-dealers have increased total ownership equity by 24%, total net capital by 64%, and excess net capital by 65%. At the same time, these firms have decreased

their exposure to a severe market decline by reducing the market value of their equity positions from around 5% of their total assets in 1987 to approximately 2% today.

Furthermore, reliance on banks to provide short-term funding for operations has been reduced since 1987. In 1987, broker-dealers relied heavily on banks to provide short-term funds to carry or clear securities transactions, to deposit unusual amounts of margin before collections from customers, or to close out stock loan activities. Today, the firms have expanded their sources of funding. For example, broker-dealers have become active participants in the commercial paper market. Five of the top NYSE firms report that funds provided by commercial paper issuances represented almost half of their total short-term borrowings. In addition, the major firms have developed contingency plans to provide liquidity in the event of a funding crisis, principally through balance sheet reductions or standby credit facilities with banks or other lending institutions. As a result of these actions, the major firms have greatly enhanced their ability to withstand substantial losses associated with a severe market drop.

Exchange initiatives have also added capital to the system. For example, the NYSE increased the minimum capital required of specialists to the greater of $1 million or 25% of the trading position requirements and increased the trading unit position requirements to three times their prior levels.

Another initiative taken by the NYSE to add capital to its specialist system involved the removal of a provision in its rules that unnecessarily inhibited large firms from entering the specialist business. The NYSE and the Commission recognized that the increasing institutionalization of the market combined with increased trading volatility would require specialists to commit much greater capital and assume more market risk in order to accommodate

the larger orders and to minimize short-term price fluctuations. To address this trend, the Exchange identified the large, diversified NYSE members as a significant source of potential capital because they had the resources to expand their businesses and could reasonably be expected to provide the assets necessary to strengthen the capital base of the NYSE's specialist system.

To make it more attractive for these firms to acquire or associate with specialists, the NYSE deleted the provision in its rules that prohibited an approved person of an NYSE specialist from acting as a managing underwriter for a distribution of any security in which an associated specialist was registered. This prohibition was originally intended to dispel any possible perception of a potential conflict of interest between a managing underwriter and its associated specialist acting as a market maker for the same security. The highly volatile nature of the markets in October 1987 and the concomitant financial strain experienced by some specialist firms, however, made it apparent that the managing underwriter prohibition imposed a significant barrier on the ability of integrated broker-dealers to enter the specialist business. Thus, it was decided that the potential reduction in risks of abuse resulting from the prohibition were outweighed by the benefits that an infusion of additional capital into the specialist system would provide.

The expansion of firm capitalization and sources of funding, the increase in the minimum capital requirements for specialists, and the removal of unnecessary regulatory burdens have all reduced systemic risk by helping to ensure that a sufficient amount of resources are committed to the markets.

2. Enhanced Monitoring

In addition to setting prudent capital levels, the Commission enhanced its ability to monitor those levels by implementing the Risk Assessment Program and by modifying Rule 15c3-1 (Net Capital Rule). Section 17(h) of the Act and the rules promulgated thereunder require broker-dealers to maintain and preserve risk assessment information with respect to those associated persons of the broker-dealer whose business activities are reasonably likely to have a material impact on the financial and operational condition of the broker-dealer, including the broker-dealer's net capital, its liquidity, or its ability to finance its operations. Rule 17h-1T sets forth the specific requirements applicable to the broker-dealer and provides guidelines to be used in establishing which associated persons are subject to the recordkeeping and reporting requirements. Included in the recordkeeping requirements are risk management policy information, financial data (including consolidating and consolidated financial statements), securities and commodities position data, and other miscellaneous categories of financial and securities related information.

The Risk Assessment Program is important for two reasons. First, it enhances the Commission's ability to monitor the financial condition of key broker-dealers and their affiliates and, second, the assembly of this information requires broker-dealers to regularly review their financial condition, thereby facilitating their ability to identify potential problems.

Another regulatory development that improved the monitoring of capital levels was the amendment of the Net Capital Rule by the Commission in 1991 to require a broker-dealer to give prior written notice to the Commission and the appropriate SRO of its intention to disburse more than a specified percentage of its capital to its parents, shareholders, or related entities. These

"ringfencing" amendments should help alert the Commission to situations when capital may be withdrawn rapidly and provide the Commission with the opportunity to take measures in response to a potential, sudden withdrawal of capital from a major firm.

3. Increased Customer Protection

The Securities Investor Protection Corporation (SIPC), which was created by the Securities Investor Protection Act of 1970, protects the customers of failed securities broker-dealers against loss of cash and securities up to certain defined limits. SIPC has taken action to further enhance the protection it provides customers and the financial system in general by increasing the size of its insurance fund. In 1987, the SIPC fund totaled approximately $379 million. As of February 15, 1997, the SIPC fund had a balance of approximately $1.1 billion (an increase of 190% since 1987). In addition, SIPC now has access to a $1 billion line of credit established with a consortium of banks and statutory authority to borrow up to an additional $1 billion from the U.S. Department of the Treasury. By increasing its insurance fund, SIPC has dramtically improved its ability to protect customers of broker-dealers that may fail as a result of a sharp market downturn, thus further promoting confidence in the U.S. securities markets.

E. International Coordination

As the 1987 Market Break demonstrated, failure to recognize the interdependence of markets can produce catastrophic results. Thus, with the interaction among the global markets steadily increasing, the Commission has continuously sought to coordinate regulatory efforts with those of regulators in other countries. In order to facilitate these efforts, the Commission has been, and continues to be, active in several international groups whose goal is to increase such coordination. Such groups include the U.S.-Russia Capital Markets Forum, the Group of

Thirty, the International Organization of Securities Commissions (IOSCO), the Council of Securities Regulators of the Americas (COSRA), the Wilton Park Group, the Joint Forum, and the Quadrilateral.

In addition, the SEC has established both formal and informal relationships with foreign regulators for cooperation in enforcement investigations and has developed mechanisms for information-gathering designed to reduce the use of international borders to escape detection and prosecution. A formal information-sharing arrangement, known as a Memorandum of Understanding (MOU), has become the standard means for enforcement cooperation among securities and futures authorities. The Commission has signed MOUs with the European Community, the Inter-American Development Bank, the United Nations Economic Commission for Latin America and the Caribbean, and twenty-six countries, including France, Germany (diplomatic notes), Hong Kong, Japan, and the United Kingdom.

In addition to MOUs, the Commission uses other formal and informal information gathering mechanisms, including U.S. mutual legal assistance treaties (MLATs) with foreign criminal authorities. In fact, the MLAT between the U.S. and Switzerland has been a particularly useful mechanism for the SEC to obtain information located in Switzerland, including detailed bank account information.

IV. Conclusion

U.S. securities markets are widely regarded as the deepest, most liquid and fairest markets in the world. The robustness and stability of the markets have allowed investors throughout the world to participate confidently in trading in the U.S. markets. Investor confidence has been critical to the phenomenal growth and success experienced by the markets.

In the past twelve months, the DJIA has broken the 5,000, the 6,000 and the 7,000 point levels. For the first time in history, assets in mutual funds have surpassed those on deposit at commercial banks. More investors than ever before have put their faith and their future in the securities markets.

While reforms have been instituted to address the weaknesses in the system uncovered by both the 1987 Market Break and the 1989 Mini-Break, it remains important to identify and address new issues before they become problems. In some cases, the question may be whether or not regulation is necessary. In others, it may be a matter of degree since costs must be balanced between being under prepared, appropriately prepared, or over prepared. Every market event, by definition, is different. The underlying structure of the market system changes through time and, therefore, the "weak links" also change. Regardless of innovations in technology or products, risk will remain in the system since it would be prohibitively expensive and overly burdensome to remove all risk—even assuming it could be done.

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APPENDIX

MARKET STRUCTURE

Recommendation	Response
Trading halts among stock, option, and futures markets should be coordinated to avoid instances in which options are trading but prices in the underlying stock market or related futures market are unknown or uncertain.	• As originally implemented, the coordinated circuit breaker procedures halted trading for 1 hour if DJIA declined 250 points from its previous close; 2 hours if it declined 400 points below its previous day's closing level. [34-26198 (10/19/88), 53 FR 41637 (10/24/88); 34-26218 (10/26/88), 53 FR 44137 (11/1/88).] • The Commission reduced the circuit breaker time frames from 60 minutes and 2 hours to 30 minutes and 60 minutes. [34-37457 (7/19/96), 61 FR 39176 (7/26/96) (NYSE); 34-37458 (7/19/96), 61 FR 39167 (7/26/96) (Amex); 37459 (7/19/96), 61 FR 39172 (7/26/96) (BSE, CBOE, CHX, and Phlx).] • The Commission approved amendments to raise the DJIA limits to 350 points and 550 points. [34-38221 (1/31/97), 62 FR 5871 (2/7/97) (NYSE, Amex, CBOE, CHX, BSE, Phlx).] • The CFTC approved a proposal that modifies the circuit breaker price limit schedule for the domestic stock index futures contracts of the CME, KCBT, and NYFE to correspond with the NYSE proposal to increase its circuit breakers to 350 and 550 points. [61 FR 68722 (12/30/96).] • The NYSE implemented a rule (80A) requiring that index arbitrage equity trades to be entered "buy minus" when the DJIA advances 50 points from the previous day's close and "sell plus" when the DJIA declines 50 points from the previous day's close. [34-28282 (7/30/90), 55 FR 31468 (8/2/90) (initial 1 year pilot program); 34-29854 (10/24/91), 56 FR 55963 (10/30/91) (permanent approval).] • When the price of the S&P 500 futures contract falls 12 points below the previous day's closing value, market orders involving program trading in each of the stocks underlying the S&P 500 futures entered into the NYSE's automated order-routing system will be routed into a separated file for each of the stocks (NYSE sidecar file). Buy and sell orders for each stock will be paired in sidecar files for the next 5 minutes to determine the extent of the order imbalance. [34-26198 (10/19/88), 53 FR 41637 (10/24/88).]

MARKET STRUCTURE

Recommendation	Response
	• The Market Reform Act of 1990 granted the Commission the authority to issue rules on an emergency basis and, under extreme conditions, to order market-wide trading suspensions provided the President does not object. [Market Reform Act of 1990, Pub. L. No. 101-432 (1990); 15 U.S.C. § 78*l*(k).] • The Commission approved a proposal that authorized the NASD to halt OTC trading in exchange-listed securities when the primary market for the securities halts trading pending the dissemination of material news. [34-25669 (5/5/1988), 53 FR 16820 (5/11/88).]
The ITS plan needs to include a preopening notification routine for trading halts that occur as a result of an imbalance.	• The Commission approved changes to the ITS plan and applicable SRO rules to include a preopening notification routine for all defined trading halts, including those resulting from an imbalance. [34-29193 (5/15/91), 56 FR 23319 (5/21/91); 34-29194 (5/15/91), 56 FR 23318 (5/21/91); 34-29522 (8/5/91), 56 FR 38162 (8/12/91).]
Increase transparency.	• The Commission adopted Rule 11Ac1-4 to require the display of customer limit orders priced better than a specialist's or OTC market maker's quote or that add to the size associated with such quote. The Commission also adopted amendments to Rule 11Ac1-1 to require a market maker to publish quotations for any listed security when it is responsible for more than 1% of the aggregate trading volume for that security and to make publicly available any superior prices that a market maker privately quotes through certain electronic communications networks. (The Order Execution Rules). [34-37619A (9/6/96), 61 FR 48290 (9/12/96).] • The NASD implemented various rule changes to facilitate the integration of the Order Execution Rules (reduced tier sizes to one unit of trading; displayed quotation sizes after SOES executions are decremented; split order execution permitted; eliminated the SOES limit order file; automatic quote updating allowed; SOES orders rejected when an ECN is the NBBO). [34-38156 (1/10/97), 62 FR 2415 (1/16/97).]

MARKET STRUCTURE

Recommendation	Response
	• The Commission adopted Rule 19c-5 under the Exchange Act to permit the trading of the same option in different markets. [34-26870 (5/26/89), 54 FR 23963 (6/5/89).]
Increase accountability.	• The NYSE and the Amex revised their specialist performance, evaluation, and improvement process, to incorporate newly developed objective performance measures, codify their reallocation procedures, and establish minimum standards for specialist performance. [34-27455 (11/22/89), 54 FR 49152 (11/29/89) (Amex); 34-27803 (3/14/90), 55 FR 10740 (3/22/90) (NYSE); 34-27675 (2/5/90), 55 FR 4922 (2/12/90) (NYSE); 34-31596 (12/14/92), 57 FR 60549 (12/21/92) (NYSE); 34-33121 (10/29/93), 58 FR 59085 (11/5/93) (NYSE); 34-34906 (10/27/94), 59 FR 55142 (11/3/94) (NYSE); 34-35932 (6/30/95), 60 FR 35763 (7/11/95) (NYSE); 34-37667 (9/11/96), 61 FR 49185 (9/18/96) (NYSE); 34-37668 (9/11/96), 61 FR 49371 (9/19/96) (NYSE); 34-38372 (3/7/97), 62 FR 13421 (3/20/97) (NYSE).] • The NYSE and the Amex clarified the restrictions concerning specialists' liquidating transactions. [34-31797 (1/29/93), 58 FR 7277 (2/5/93) (NYSE); 34-38379 (3/10/97), 62 FR 13918 (3/24/97) (Amex).] • The NASD prohibited Nasdaq market makers from trading ahead of any customer limit order in a Nasdaq security sent to it for execution from another broker-dealer. [34-35751 (5/22/95), 60 FR 27997 (5/26/95).] • The Commission approved a NYSE/CME policy and circular prohibiting a member or person associated with a member or member organization from engaging in frontrunning involving securities and stock index futures or options on stock index futures. [34-27047 (7/19/89), 54 FR 31131 (7/26/89).] • The NASD adopted rules providing greater limit order protection in the Nasdaq Stock Market. [34-34279 (6/29/94), 59 FR 34883 (7/7/94).]
Create a single specialist/market maker post where actual market baskets can be traded.	• The Commission approved rule changes by the NYSE and CBOE to trade standardized baskets of stocks at an aggregate price in a single execution.

MARKET STRUCTURE

Recommendation	Response
	[34-27382 (10/26/89), 54 FR 45834 (10/31/89) (NYSE); 34-27383 (10/26/89), 54 FR 45846 (10/31/89) (CBOE).] • The Commission approved an OCC proposal to clear and settle a new CBOE market basket product through physical delivery of shares at each clearing member's designated clearing corporation. [34-27389 (10/25/89), 54 FR 45872 (10/31/89).] • The NSCC changed its rules to enable it to clear and settle basket trades. [34-27388 (10/26/89), 54 FR 45870 (10/31/89).] • The Chicago Stock Exchange established rules to allow for the trading of standardized baskets and to trade a specific basket of stocks (the Chicago basket). [34-33053 (10/15/93), 58 FR 54610 (10/22/93); 34-33058 (10/15/93), 58 FR 54388 (10/21/93).] • The NYSE modified its rules regarding the trading of baskets by requiring the initiation of a discontinuous auction market when certain futures market circuit breakers take effect or when there would be a basket execution significantly away from the value underlying the index. [34-28011 (5/11/90); 55 FR 20885 (5/21/90).]
Speed up the opening rotations in the options market.	• The CBOE modified opening rotation procedures for OEX options to utilize Lead market makers and Supplemental Market Makers thus shortening the average length of OEX rotations from approx. 20 minutes to 5 minutes. [34-25627 (4/29/88), 53 FR 16206 (5/5/88).] • The CBOE adopted on a permanent basis auxiliary market opening procedures to accommodate increased order flow experienced on quarterly expirations of stock index derivative products. [34-25804 (6/15/88), 53 FR 23474 (6/22/88).]
Review the impact of issuer repurchases and the possible need for amendments to Rule 10b-18.	• The Commission's Division of Market Regulation declined to expand the exemption concerning block trades and trading volume. [No-Action Letter from Larry E. Bergmann, Associate Director, Division of Market Regulation, SEC to

MARKET STRUCTURE

Recommendation	Response
	Charles J. Plohn, Jr., Managing Director, Merrill Lynch, Pierce, Fenner & Smith Inc., dated 10/25/91 (File No. TP 91-16).]

AUTOMATION

Recommendation	Response
Market makers need to develop and implement regular, comprehensive stress testing programs for their automated systems to ensure sufficient capacity exists.	• The Commission published two automation review policy statements (ARP I and ARP II) to provide the industry with, among other things, detailed guidelines on the independent review process for SROs' capacity planning, systems development, contingency planning, and security review programs. [34-27445 (11/16/89), 54 FR 48703 (11/24/89); 34-29185 (5/9/91), 54 FR 48703 (5/15/91).]
Coordination among the markets should be improved, especially when systems are down and order flow may need to be sent to another market.	• The INFOE system was created. This teleconferencing system links the major securities and futures SROs, as well as the SEC and CFTC, and is used during periods of market stress to disseminate simultaneously among the equity, options, and futures markets the latest information available concerning: (1) the approach, implementation, or suspension of circuit breaker mechanisms; (2) securities experiencing delayed openings or trading halts; (3) order imbalances in NYSE securities disseminated as part of circuit breaker mechanisms; and (4) operational problems concerning the Consolidated Quotation System (CQS), Options Price reporting Authority (OPRA), ITS, exchange order routing or order execution systems, or other exchange systems. • In 1994, a similar teleconferencing system was implemented to link the SEC Chairman to the leaders of the nation's securities markets and clearing organizations.
The ability of market makers to execute electronically against other market makers' quotations must be ensured.	• The NASD required all Nasdaq National Market securities market makers to participate in the SOES system, limited the number of valid excuses for withdrawal, and raised the penalty for unexcused withdrawal by a market maker from Nasdaq. [34-25791 (6/9/88), 53 FR 22594 (6/16/88).] • The NASD created SelectNet (originally named Order Confirmation Transaction service "OCT") to permit firms to access market makers over a computer link thereby obviating the need for voice contact. [34-25690 (5/11/88), 53 FR 17523 (5/17/88).] • The NASD modified SelectNet to allow order entry firms to preference a specific market maker

Recommendation	Response
	and to "broadcast" an order through SelectNet to all market makers. [34-28636 (11/21/90), 55 FR 49732 (11/30/90).] • The NASD adopted rule changes that allow nonmembers to receive real-time access to view all orders "broadcast" through SelectNet. [34-35482 (3/13/95), 60 FR 14806 (3/20/95).] • The Pacific Stock Exchange established electronic access memberships — Automated System Access privilege (ASAP). [34-28335 (8/13/90), 55 FR 34106 (8/21/90).] • The Boston Stock Exchange established an automated, small order communication, order routing, and execution system for member organizations known as BEACON. [34-26029 (8/25/88), 53 FR 33565 (8/31/88) (initial 6 month pilot program); 34-27012 (7/10/89), 54 FR 30487 (7/20/89) (permanent approval).] • The Amex modified its rules and systems to permit the automatic execution of orders up to 599 shares entered into the PER system in select Amex equities through the Exchange's Auto-Ex system during periods of extremely high order flow. [34-30757 (5/29/92), 57 FR 24067 (6/5/92).]
Information systems should be established that incorporate information regarding the trade, the time of the trade, and the name of the ultimate customer in every major market segment so that developing problems can be diagnosed, potentially damaging abuses can be uncovered, and the nature and cause of a market crisis can be identified.	• The Commission proposed Rule 13h-1 for comment, which would have established a large trader reporting system, as contemplated by the Market Reform Act of 1990. In response to the comments received, the Commission amended Rule 13h-1 and reproposed it. [34-29593 (8/22/91), 56 FR 42550 (8/28/91); 34-33608 (2/17/94), 59 FR 7917 (2/22/94); Market Reform Act of 1990. Pub. L. No. 101-432 (1990).] • The Commission adopted Rule 17a-23 under the Exchange Act to establish record keeping and reporting requirements for broker-dealers that operate automated trading systems. Registered broker-dealer sponsors of these systems are required to maintain participant, volume, and transaction records, and to report system activity periodically to the Commission. [34-35124 (2/20/94), 59 FR 66702 (2/28/94).]

AUTOMATION

Recommendation	Response
The options exchanges need to review their rules regarding market maker participation in small order execution systems.	• The CBOE modified its rules to ensure adequate market maker participation in the Retail Automatic Execution System (RAES). [34-25995 (8/15/88), 53 FR 31781 (8/19/88) (initial pilot); 34-28088 (6/1/90), 55 FR 23620 (6/11/90) (permanent approval).] • The Amex expanded the use of its Auto-Ex system to include all equity and stock index options traded on the Amex. [34-25996 (8/15/88), 53 FR 31779 (8/19/88).] • The PSE created the Pacific Options Exchange Trading System (POETS). [34-27633 (1/18/90), 55 FR 2466 (1/24/90).] • The Phlx implemented the Automated Options Market (AUTOM) automated execution feature. [1/19/90 34-27599 (1/9/90); 55 FR 1751 (1/18/90).]
Other automation initiatives.	• The NYSE modified its Individual Investor Express Delivery Service ("IIEDS") to provide that market orders of individual investors up to 2,099 shares will always have priority delivery to specialists' posts through the Exchange's SuperDOT system ahead of all other orders at all times. [34-27600 (1/9/90), 55 FR 1749 (1/18/90).] • OCC modified its systems to distribute clearing reports to members electronically. [34-31992 (3/12/93), 58 FR 14606 (3/18/93).] • OPRA implemented systems modifications that allow the announcement of new series through computer formatted messages thus eliminating the time consuming and error prone process of transcribing needed to announce a new series.

CLEARANCE AND SETTLEMENT

Recommendation	Response
Shorten the 5 day settlement process for securities transactions.	• The Commission approved Rule 15c6-1 under the Exchange Act which established T+3 as the standard settlement time frame for broker-dealer trades. [34-33023 (10/6/93), 58 FR 52891 (10/13/93).] • Conforming changes to Reg. T were implemented. [59 FR 53565 (10/25/94).] • The MSRB required that all broker-dealer trades in municipal securities, other than trades done on a "when, as, and if issued" basis, settle within three business days. [34-35427 (2/28/95), 60 FR 12798 (3/8/95).] • The Commission approved the DTC same-day funds settlement system, which expanded DTC's certificate immobilization and book-entry delivery services to certain securities settling in same-day funds, such as municipal notes and auction rate preferred stock. [34-26051 (8/31/88), 53 FR 34852 (9/8/88).] • In February 1996, the payment systems for securities transactions and principal and interest payments converted from next-day funds settlement to same-day funds settlement. The conversion affects payments for settlements among clearing corporations, depositories, and financial intermediaries and between financial intermediaries and their institutional clients. The conversion does not affect payments to and from retail investors. The same-day funds settlement system conversion is expected to help reduce systemic risk by eliminating overnight credit risk. [34-35720 (5/16/95), 60 FR 27360 (5/23/95) (DTC); 34-36866 (2/21/96), 61 FR 7290 (2/27/96) (NSCC).] • A direct registration system was implemented. [34-37931 (11/8/96), 61 FR 58600 (11/15/96) (DTC); 34-37933 (11/8/96), 61 FR 59269 (11/21/96) (Philadep); 34-37937 (11/8/96), 61 FR 58728 (11/18/96) (NYSE).] • The NYSE and the NASD modified their rules to require that members use securities depositories to confirm, affirm, and settle institutional trades in corporate equity securities for delivery against payment or receipt against payment. [34-25120 (11/13/87), 52 FR 44506 (11/19/87).]

CLEARANCE AND SETTLEMENT

Recommendation	Response
Coordinate the settlement process across markets.	• The major U.S. clearing organizations established the Securities Clearing Group. This is a voluntary organization of clearing agencies designed to increase coordination and cooperation between clearing agencies in overseeing the financial and operating condition of the participants' common members. [34-26300 (11/21/88), 53 FR 48353 (11/30/88) (full text of SCG agreement); 34-27044 (7/18/89), 54 FR 30963 (7/25/89) (DTC, MCC, MSTC, NSCC, OCC, Philadep, SCCP); 34-28044 (5/23/90), 55 FR 22122 (5/31/90) (MBSCC and BSECC); 34-28157 (6/28/90), 55 FR 28115 (7/9/90) (GSCC); 34-29639 (8/30/91), 56 FR 44116 (9/6/91) (PTC).] • Uniform book entry requirements were adopted. [34-32455 (6/11/93), 58 FR 33679 (6/18/93) (Amex, BSE, CHX, NASD, NYSE, Phlx, PSE); 34-32640 (7/15/93), 58 FR 39260 (7/22/93)(MSRB); 34-36778 (1/26/96), 61 FR 3741 (2/1/96)(CBOE).] • Uniform depository eligibility requirements were adopted. [34-35798 (6/1/95) 60 FR 30909 (6/12/95) (Amex, BSE, CHX, NASD, NYSE, Phlx, PSE); 34-36778 (1/26/96), 61 FR 3741 (2/1/96)(CBOE).]
A single mechanism should be developed for clearing stocks, stock index futures, and stock options to facilitate the smooth settlement of intermarket transactions, allow intermarket exposure to be assessed accurately, and remove inhibitions on the collateralization of intermarket positions.	• The Collateral Management Service (CMS) was developed to provide information regarding participants' clearing fund, margin, and other similar requirements and deposits, including excess or deficit amounts and comprehensive data on underlying collateral. [34-36091 (8/10/95), 60 FR 42931 (8/17/95); 34-36431 (10/27/95), 60 FR 55749 (11/2/95).] • In order to facilitate participation in CMS, the major U.S. securities clearing organizations modified their rules to authorize the release of clearing data. [34-36431 (10/27/95), 60 FR 55749 (11/2/95) (MBSCC); 34-36597 (12/15/95), 60 FR 66570 (12/22/95) (GSCC); 34-36743 (1/26/96), 61 FR 2551 (1/19/96) (SCCP and Philadep); 34-37608 (8/26/96), 61 FR 46498 (9/3/96) (DTC); 34-38313 (2/19/97), 62 FR 8810 (2/26/97) (PTC).] • The Risk Management System (RMS) was developed to facilitate participants' ability to

CLEARANCE AND SETTLEMENT

Recommendation	Response
	evaluate the risk profile of certain positions in debt and equity securities, securities options, and futures contracts in light of certain theoretical market movements. [34-30346 (2/6/92), 57 FR 5195 (2/12/92).] • The Institutional Delivery System (ID) was enhanced by adding electronic mail features and interactive capabilities such as the Notice of Order Execution and Institutional Instructions, prime broker option, the Advice of Confirm Correction/Cancellation feature, and the Authorization/Exception Processing feature. [34-34199 (6/10/94), 59 FR 31660 (6/20/94); 34-34779 (10/3/94), 59 FR 51465 (10/11/94); 34-35971, 60 FR 37696 (7/21/95); 34-36050 (8/12/95), 60 FR 41139 (8/11/95).] • MSTC and DTC expanded the interface to DTC's Interactive Institution Delivery System (IID) to include interactive inquiry and affirmation capability and to facilitate access to DTC's Standing Instruction Database (SID). [34-35656 (4/28/95), 60 FR 24938 (5/10/95).] • The Commission permanently approved the NSCC's centralized, automated clearance and settlement system for mutual funds known as the Mutual Fund Settlement, Entry, and Registration Verification Service (Fund/SERV). [34-25416 (11/20/87), 52 FR 45418 (11/27/87).] • The NSCC added the NETWORKING service to the Fund/SERV system to centralize and standardize the exchange of customer account level activity information between broker-dealers and mutual fund processors. [34-26376 (12/20/88), 53 FR 52544 (12/28/88).] • DTC enhanced its linkage to Fund/SERV by allowing NSCC members who are not direct Fund/SERV participants to access this service through DTC. [34-27904 (4/13/90), 55 FR 15047 (4/20/90).] • NSCC modified Fund/SERV to automate the processing of mutual fund underwritings and tender offers. [34-28573 (10/23/90), 55 FR 45700 (10/30/90).] • NSCC increased the flexibility of Fund/SERV to permit the inclusion of no-load funds. [34-31937

CLEARANCE AND SETTLEMENT

Recommendation	Response
	(3/1/93), 58 FR 12609 (3/5/93).]
Integrate clearing.	• OCC and Comex established a cross-margining program. [34-31414 (11/6/92), 57 FR 53943 (11/13/92).] • OCC and ICC established a cross-margining program. [34-26153 (10/3/88), 53 FR 39567 (10/7/88); 34-30041 (12/5/91), 56 FR 64824 (12/12/91) (expanded cross-margining program to include nonproprietary, market maker positions).] • OCC and the CME established a cross-margining program. [34-27296 (9/26/89), 54 FR 41195 (10/5/89); 34-29991 (11/26/91), 56 FR 61458 (12/3/91) (expanded cross-margining program to include nonproprietary, market maker positions).] • OCC and the Board of Trade Clearing Corporation established a proprietary cross-margining program. [34-29888 (10/31/91), 56 FR 56680 (11/6/91).] • OCC and the Kansas City Board of Trade Clearing Corporation established a proprietary cross-margining program. [34-30413 (2/16/92), 57 FR 7830 (3/4/92); 34-32708 (8/2/93), 58 FR 42586 (8/10/93) (expanded cross-margining program to include positions held for market professionals).] • OCC included equities in its Theoretical Intermarket Margin System. [34-28928 (3/1/91), 56 FR 9995 (3/8/91).] • OCC created a smallcap index product group for cross-margining purposes. [34-32020 (3/19/93), 58 FR 16438 (3/26/93).]
Confirm all trades on trade date.	• The NYSE and the Amex, in conjunction with the NSCC, adopted rules that require members to compare or close-out all regular way equity trades by the close of business on T+1 and supplemented these rules with automated trade resolution systems that assist members in resolving uncompared trades efficiently. [34-28285 (7/30/90), 55 FR 31930 (8/6/90) (NYSE); 34-27851 (3/27/90), 55 FR 12759 (4/5/90) (Amex); 34-27074 (7/28/89), 54 FR 32405 (8/7/89) (NSCC).]

CLEARANCE AND SETTLEMENT

Recommendation	Response
	• The Commission approved rule changes that fully implemented next day comparison of exchange and OTC corporate securities trades and the automated resolution of uncompared trades. [34-27598 (1/9/90), 55 FR 1748 (1/18/90) (NYSE); 34-27809 (3/16/90), 55 FR 11074 (3/26/90) (Amex).] • The NASD developed the Automated Confirmation Transaction service ("ACT") which matches nonautomated OTC trades in an automated system and then forwards the trades to NSCC for processing. [34-27229 (9/7/89), 54 FR 38484 (9/18/89); 34-28583 (11/21/90), 55 FR 46120 (11/1/90); 34-30415 (2/26/92), 57 FR 7829 (3/4/92).] • The CBOE established procedures for its intraday trade match system. [34-3000 (11/26/91), 56 FR 63531 (12/4/91).]
Reassess basic volatility assumptions and margin formulas.	• OCC began utilizing its Theoretical Intermarket Margin System for calculating member margin on equity options (Equity TIMS). [34-28928 (3/1/91), 56 FR 9995 (3/8/91); 34-37985 (11/25/96), 61 FR 64406 (12/4/96) (permanent approval).] • OCC modified the margin intervals relating to nonequity options positions to alleviate the excessive margin required for out-of-the-money nonequity options positions in unusually volatile market conditions. [34-25174 (12/4/87), 52 FR 47474 (12/14/87).]
Augment the ability of clearing organizations to satisfy the obligations of defaulting market participants.	• The Commission granted OCC the authority, in the event of a market emergency, to defer liquidation of a defaulting clearing member's positions and to execute hedge transactions to protect against a decline in open positions. [34-27104 (8/8/89), 54 FR 33642 (8/15/89). • The clearing organizations modified their rules to permit the execution of cross-guarantee agreements. [34-38410 (3/17/97), 62 FR 13931 (3/24/97) (OCC); 34-37616 (8/28/96), 61 FR 46887 (9/5/96) (MBSCC, GSCC, ISCC); 34-38350 (2/27/97), 62 FR 10601 (3/7/97) (NSCC); 34-33548 (1/31/94), 59 FR 5638 (2/7/94) (DTC-

CLEARANCE AND SETTLEMENT

Recommendation	Response
	NSCC agreement).]
Clarify and confirm the rights and duties of parties to the clearing and settlement process.	• The GSCC changed its rules to clarify that comparisons issued by it to GSCC members for compared trades are binding contracts. [34-26565 (2/22/89), 54 FR 8417 (2/28/89.]
Increase the availability of timely information to participants in the settlement process concerning payment obligations and cash flows.	• The NSCC and the SCCP modified their rules and systems to provide earlier settlement guarantees of Continuous Net Settlement trades. [34-27192 (8/29/89), 54 FR 37070 (9/6/89) (initial pilot program); 34-37381 (6/28/96), 61 FR 35289 (7/5/96) (permanent approval).]

CAPITAL REQUIREMENTS

Recommendation	Response
Increase the margin requirements.	• The Amex, the CBOE, the NYSE, the PSE, and the Phlx raised the basic and minimum formula percentages for both index and equity options. (generally, broad-based index options=premium + 15%; equity and narrow-based index options=premium + 20%; and the minimum required margin was raised an additional 5%). [34-25701 (5/17/88), 53 FR 20706 (6/6/88); 34-27075 (7/28/89), 54 FR 32409 (8/7/89); 34-27159 (8/21/89), 54 FR 35958 (8/30/89); 34-27186 (8/25/89), 44 SEC Docket 848.] • Margin requirements for OTC options were modified . [34-36948 (3/11/96), 61 FR 10832 (3/15/96).]
Increase the minimum financial requirements on market participants.	• The NYSE raised minimum dollar amount for specialists' capital from $100,000 to $1 million and increased the measure based upon the trading unit position to three times its 1987 level. [34-25677 (5/6/88), 53 FR 17286 (5/16/88).] • The Amex raised its capital requirements from $100,000 to $600,000. [34-25863 (6/28/88), 53 FR 25225 (7/5/88).] • The NYSE raised the capital requirements for members who execute transactions on the Floor but are not otherwise covered by the higher capital requirements from $50,000 to $100,000. [34-26176 (10/13/88), 53 FR 41009 (10/19/88).] • OCC increased the initial and minimum net capital required of its members from $150,000 initial/$100,000 maintenance to $1,000,000 initial/$750,000 maintenance. [34-26840 (5/19/89), 54 FR 23004 (5/30/89).] • The NYSE deleted a restriction in NYSE Rule 98 that prohibited an approved person of an NYSE specialist unit from acting as a managing underwriter for a distribution of any security in which the associated specialist was registered, which facilitated the ability of large, diversified firms to enter the specialist business. [34-26125 (9/28/88), 53 FR 39395 (10/16/88).] • Competing specialists were allowed on the Floor of the BSE. [34-34078 (5/18/94), 59 FR 27082 (5/25/94).]

CAPITAL REQUIREMENTS

Recommendation	Response
	• The Amex, the CBOE, the NYSE, the PSE, and the Phlx implemented a "10 up" requirement for options contracts (ensures minimum depth of market to 10 contracts (1,000 shares)). [34-27235 (9/11/89), 54 FR 38580 (9/19/89) (Amex); 34-26924 (6/13/89), 54 FR 26284 (6/22/89) (CBOE); 34-28897 (2/19/91), 56 FR 7736 (NYSE) (2/25/91); 34-24580 (6/11/87), 52 FR 23120 (6/17/87) (Phlx); 34-31824 (2/4/93), 58 FR 8078 (2/11/93) (PSE).] • OCC increased the minimum required contribution by members to OCC's clearing fund from $10,000 to $75,000 for the stock fund and from $50,000 to $75,000 for the nonequity fund. [34-27480 (11/28/89), 54 FR 50553 (12/7/89).] • In order to provide further investor protection in the event of a failure of a retail broker, the Securities Investor Protection Corporation (SIPC) has taken action to increase the size of its insurance fund—the SIPC fund has grown to $1.1 billion (an increase of 190% from 1987) and SIPC has secured additional lines of credit of $2 billion.
Improve monitoring capabilities.	• The Commission approved Rules 17h-1T and 17h-2T which, together with Form 17-H, established a risk assessment recordkeeping and reporting system for registered broker-dealers concerning certain of their associated persons. The Division of Market Regulation is preparing a study that evaluates the effectiveness of the risk assessment rules which it plans to present to the Commission in 1997. [34-30929 (7/16/92), 57 FR 32159 (7/21/92).]
Reexamine the minimum net capital required of broker-dealers that carry customer accounts, those that introduce customer accounts on a fully-disclosed basis to another broker-dealer, and those that are market makers in OTC securities.	• The Commission amended Rule 15c3-1, the Net Capital Rule, to gradually increase the minimum net capital requirements for certain registered broker-dealers. [34-31511 (11/24/92), 57 FR 56973 (12/2/92).] • The Commission amended the Net Capital Rule to permit broker-dealers to employ theoretical option pricing models in determining net capital requirements for listed options and related positions. [34-38248 (2/6/97), 62 FR 6474 (2/12/97).]

INTERNATIONAL COORDINATION

Recommendation	Response
Increase coordination with regulators in other countries by developing trading linkages, clearance and settlement linkages, and other similar arrangements; by implementing international trade and quote reporting mechanisms; ensuring adequate financial oversight systems exist; and by forming effective enforcement and surveillance relationships.	• The Commission has signed formal information sharing agreements with a number of countries. [International Series Release No. 354, 50 SEC Docket 0878 (12/9/91) (Argentina); International Series Release No. 599, 55 SEC Docket 0840 (10/20/93) (Australia); International Series Release No. 7, 43 SEC Docket 0206 (7/1/88) (Brazil); International Series Release No. 6, 43 SEC Docket 0186 (1/7/88) (Canada); International Series Release No. 548, 54 SEC Docket 0737 (6/3/93) (Chile); International Series Release No. 662, 56 SEC Docket 1980 (4/29/94) (China); International Series Release No. 331, 49 SEC Docket 2002 (10/10/91) (Costa Rica); International Series Release No. 932, 61 SEC Docket 0932 (2/11/96) (Egypt); International Series Release No. 932A, 61 SEC Docket 2180 (4/11/96) (Egypt); International Series Release No. 320, 49 SEC Docket 1746 (9/23/91) (European Community); International Series Release No. 116, 45 SEC Docket 724 (12/14/89) (France); International Series Release No. 691, 57 SEC Docket 734 (7/22/94) (Germany); International Series Release No. 863, 60 SEC Docket 1458 (10/5/95) (Hong Kong); International Series Release No. 864, 60 SEC Docket 1464 (10/5/95) (Hong Kong); International Series Release No. 129, 46 SEC Docket 1076 (6/22/90) (Hungary); International Series Release No. 376, 51 SEC Docket 0183 (3/24/92) (Indonesia); International Series Release No. 324, 49 SEC Docket 1780 (9/26/91) (IADB/UNECLAC); International Series Release No. 934, 61 SEC Docket 0933 (2/13/96) (Israel); International Series Release No. 934A, 61 SEC Docket 2185 (4/9/96) (Israel); International Series Release No. 112, 44 SEC Docket 1319 (9/20/89) (Italy); International Series Release No. 547, 54 SEC Docket 0347 (5/5/93); International Series Release No. 5, 43 SEC Docket 184 (5/23/86) (Japan); International Series Release No. 137, 46 SEC Docket 1715 (5/23/90) (Luxembourg); International Series Release No. 181, 47 SEC Docket 1128 (10/18/90) (Mexico); International Series Release No. 115, 45 SEC Docket 715 (1/12/90) (Netherlands); International Series Release No. 321, 49 SEC Docket 1747 (9/24/91) (Norway); International Series Release No. 899, 60 SEC Docket 2671 (12/5/95) (Russia); International Series Release No. 794, 58 SEC Docket 3006 (3/2/95) (South Africa);

INTERNATIONAL COORDINATION

Recommendation	Response
	International Series Release No. 429, 51 SEC Docket 2839 (7/8/92) (Spain); International Series Release No. 322, 49 SEC Docket 1764 (9/25/91) (Sweden); International Series Release No. 2, 43 SEC Docket 141 (8/31/82) (Switzerland); International Series Release No. 626, 55 SEC Docket 2600 (11/3/93) (Switzerland); International Series Release No. 4, 43 SEC Docket 176 (9/23/86) (U.K.); International Series Release No. 323, 49 SEC Docket 1767 (9/25/91) (U.K.); International Series Release No. 806, 59 SEC Docket 0698 (5/1/95) (U.K.). • The NASD implemented the Nasdaq International service to support an early trading session in London. It is available from 3:30 a.m. to 9:00 a.m. ET on each U.S. business day that coincides with the business hours of the London financial markets. It is primarily designed to accommodate international trading by institutional investors in the U.S., U.K., and other parts of Europe. [34-29812 (10/11/91); 56 FR 52082 (10/17/91); 34-32471 (6/16/93), 58 FR 33965 (6/22/93); 34-33037 (10/8/93), 58 FR 53752 (10/18/93); 34-36359 (10/11/95), 60 FR 53820 (10/17/95).]

CAPITAL REQUIREMENTS

Recommendation	Response
	• The Commission issued a concept release soliciting comments on a broad range of issues regarding the capital standards imposed by the Net Capital Rule on broker-dealer participation in the derivative products markets. [34-32256 (5/4/93), 58 FR 27486 (5/10/93).]
The provision in the Net Capital Rule that allows some options market makers that are not exempt from the net capital rule to avoid under certain circumstances the haircuts on their options positions should be eliminated.	• The Commission amended the Net Capital Rule to make it applicable to certain specialists that were formerly exempt from the rule but continued to exempt options market makers on national exchanges under certain conditions. [34-32737 (8/11/93), 58 FR 43555 (8/17/93).]
There should be limitations on the withdrawal of equity from market makers' accounts.	• The Commission amended the Net Capital Rule to prevent the withdrawal of net capital by broker-dealers under certain circumstances for the benefit of certain persons related to the broker-dealer without first notifying the Commission at least 2 business days before the withdrawal of capital. [34-28927 (2/28/91), 56 FR 9124 (3/5/91).]