

## **Chapter 6**

# **Domestic Clearing and Settlement: What Happens After the Trade**

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## Domestic Clearing and Settlement: What Happens After the Trade<sup>1</sup>

“Clearing and settlement” is the processing of transactions on stock, futures, and options markets.<sup>2</sup> It is what happens after the trade. “Clearing” confirms the identity and quantity of the financial instrument or contract being bought and sold, the transaction price and date, and the identity of the buyer and seller. “Settlement” is the fulfillment, by the parties to the transaction, of the obligations of the trade. In equities and bond trades, “settlement” means payment to the seller and delivery of the stock or bond certificates or transferring its ownership to the buyer. Settlement in futures and options takes on different meanings according to the type of contract.

Trades are processed differently depending on the type of financial instrument being traded, the market or exchange on which it is traded, and the institutions involved in the processing of the trade (i.e., an exchange, a clearinghouse, a depository, or some combination). The integrity and efficiency of the U.S. clearing and settlement systems is important to both its internal financial and economic stability and its ability to compete with other nations. U.S. markets use clearinghouses to handle the clearing and some of the settlement processes for exchange-traded financial products, and “depositories” to hold stocks and bonds for safekeeping on behalf of their owners.

Major goals of clearing and settlement in the United States are broad public access to the markets and the reduction of risk, through the clearinghouse as an intermediary. These policies are reflected in a hierarchy of protections for the clearinghouse, including minimum capital requirements for clearinghouse members.

Other aims of clearing and settlement in the United States are efficiency and safety. The faster and more accurately a trade can be processed, the sooner the same capital can be re-invested, and at

less cost and risk to investors. Therefore, as markets become global, one could expect that investment capital will flow toward markets that are most attractive in terms of risks and returns, and that also have efficient and reliable clearing and settlement systems.

The increasing trend toward global trading and linked world markets heightens the importance of viewing clearing and settlement systems as also linked. The soundness of clearing and settlement systems in one nation can impact other nations. The failure of a major clearing member—the member firms of an exchange or market—at a foreign clearinghouse could affect a U.S. clearinghouse through the impact on a common clearing member. To reduce the risk of such an occurrence, different countries’ clearing and settlement systems must be coordinated, for example, by sharing risk information and harmonizing trade settlement dates. Both the private sector and Federal regulators have begun to take steps in this direction. It is doubtful that the private sector can achieve the needed changes (discussed later) without government taking a prominent and concerted role.

### HOW CLEARING AND SETTLEMENT WORKS<sup>3</sup>

Many kinds of organizations are involved in clearing and settlement. Their functions vary from market to market. A key role of a clearinghouse is to assist in the comparison of trades and to remove counterparty risk from the settlement process. Clearinghouses provide the buyer with a guarantee that he will receive the securities-or other interest-he purchased, and provide the seller with a guarantee that he will receive payment.

The clearinghouse has a number of working relationships, or interfaces, with other institutions

<sup>1</sup>For a discussion of clearing and settlement in the United Kingdom and Japan, see *OTA Background Report: Trading Around the Clock: Securities Markets and Information Technology*, Appendix, OTA-BP-CIT-66 (Washington, DC: U.S. Government Printing Office, July 1990).

<sup>2</sup>In preparing this chapter, OTA has relied heavily on a contractor report by Bankers Trust Co. *Study of International Clearing and Settlement*, vols. I-V, October 1989, to which many dozens of institutions and individuals around the world contributed expert papers and/or seined on the Bankers Trust advisory panel. This report is hereafter referred to as “Bankers Trust report.” OTA has also used the discussions of an expert workshop held at OTA on Aug. 22, 1989.

<sup>3</sup>A detailed description of clearing and settlement in the United States is provided in the appendix.

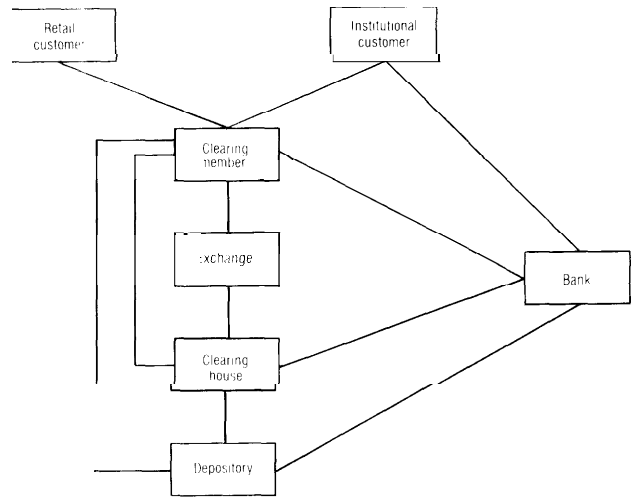
(figure 6-1). A trade cannot settle through the central systems until it has been matched, i.e., until buyers' and sellers' records of the trade are compared and reconciled. A clearinghouse has an interface with a market in which trades are executed and from which the clearinghouse receives information on the trades.<sup>4</sup> The clearinghouse may receive previously "locked-in" trades (trades which have already been matched), or it may match the trades itself.

A second interface is with its clearing members, i.e., the member firms of an exchange or market. A clearing member delivers trade information to the clearinghouse and may hold positions both for itself (proprietary positions) and on behalf of its customers. Other traders in a market, who are not clearing members, must clear their trades through a member of a clearinghouse for that market. The clearinghouse may also provide its clearing members with a trade-matching service and notify members about the way a trade is to be settled (the settlement date, and the way payment and delivery or transfer of ownership will be accomplished). A clearinghouse controls the risks of the clearing and settlement process through its relationships with its clearing members. For example, typically it will have some combination of minimum capital requirements for clearing members; margins or mark-to-market procedures; and requirements that its clearing members place collateral in a guarantee fund as protection against default by other clearing members (one exception is the Board of Trade Clearing Corp.). In the event of the failure of a clearing member, the clearinghouse may also have the ability to assess all other clearing members.

A third interface is with clearing and credit banks. The clearinghouse and the banks work together in the payment and collection process, since clearinghouses do not today have direct access to the payment system (Fedwire in the United States), as banks do. The banks also provide credit to clearing members.

In the securities markets—but not typically in futures and options markets—there is often a fourth

**Figure 6-1—Interfaces Among Clearing Participants**



SOURCE: Office of Technology Assessment, 1990.

interface, with the depository. The depository records and arranges the legal transfer of ownership of securities, and holds securities for safekeeping. The clearinghouse instructs the depository on how the transaction is to be settled. The depository may act as an agent, on behalf of the clearinghouse, to receive funds to settle the transaction.

In addition to the relationships between clearinghouses and markets, depositories, and banks, these organizations also have relationships among each other. Clearing members of a designated market deal with the banks to settle with the clearinghouse and to obtain credit. There is an important relationship between the banks and the depository. When a bank acts in a custodial role, e.g., delivering securities and receiving payments on behalf of its customers, instructions on payment and title transfer are sent to the bank by the customer. The depository, in turn, as an accounting system for immobilized or dematerialized instruments, and/or as a central vault for the physical instruments themselves, interfaces with the banks as custodian. It may also, as custodian, have an interface with the banks for payment.<sup>6</sup>

<sup>4</sup>The clearing entity could alternatively receive information about a trade directly from two market participants.

<sup>5</sup>This is often referred to as "delivery versus payment" (DVP) and "receive versus payment." These terms mean the buyer and the seller each satisfy their settlement obligations (to pay and deliver) on the same day. A closely related term is "true DVP," which means that the buyer and the seller simultaneously make good on their settlement obligations. An example of true DVP would be a trade settled through a depository, in which the depository simultaneously transferred the funds and the ownership of the traded financial instrument.

<sup>6</sup>Four depositories in the United States now have links to the Federal Reserve System. These are The Depository Trust Co., the Midwest securities Trust Co., the Participants Trust Co., and the Philadelphia Depository Trust Co.

There are two major thrusts underway for improving clearing and settlement systems, both of which show considerable promise. The first stems, in part, from U.S. studies of the 1987 market crash. The second is a result of the international efforts of the Group of Thirty. Each is discussed below.

## U.S. EFFORTS FOR IMPROVEMENT

Legislative objectives for clearing and settlement include: developing safe and efficient systems; establishing uniform standards and procedures; and establishing links between clearing and settlement organizations.<sup>8</sup> The law in its current form states that Federal policy for clearing and settlement of securities is based on:

... public interest, the protection of investors, the safeguarding of securities and funds, and maintenance of fair competition among brokers and dealers, clearing agencies and transfer agents. . . to facilitate the establishment of a national system for the prompt and accurate clearance and settlement of transactions.<sup>9</sup>

The Securities Act Amendments of 1975 mandated the creation of a national system for clearing and settlement<sup>10</sup> of securities, largely as a result of the increased trading volume of equities that began in the late 1960s and the associated severe problems in back office clearing and transfer operations. Before that legislation, clearing functions were operated by each exchange, a practice that largely

still holds in futures markets.<sup>11</sup> Equities clearing is now almost entirely centralized in the National Securities Clearing Corp. (NSCC),<sup>12</sup> which has interfaces with other clearing organizations.

The Securities and Exchange Commission (SEC) has regulatory authority over the clearing and settlement of all equities and equity options. The Federal Reserve has the authority to set minimum initial margin requirements for securities trading.<sup>13</sup> The Commodity Futures Trading Commission (CFTC) has authority for the clearing and settlement of all futures contracts<sup>14</sup> and options on futures. There is, however, no legislation concerning clearing and settlement in futures markets comparable to that for securities markets. It may be needed in order to strengthen the CFTC's authority to force needed improvements in the process, e.g., by standardizing elements of the clearing and settlement process, such as the liability of Futures Commission Merchants in the event of a clearinghouse insolvency, and to establish whether clearinghouses should have the right to assess their members in the event of a member's default.<sup>15</sup>

In the United States, a relatively small number of organizations provide clearing and settlement services for nearly all domestic transactions. See table 6-1. There have been clearing and settlement organizations in the United States for almost a century. Centralized clearing within each of the equities, options, and futures industries developed more recently, prompted, in part, by Federal legislation.<sup>16</sup>

<sup>7</sup>It was not until 1975 that the "clearing agency" was added to the 1934 Securities and Exchange Act and those clearing agencies registered with the SEC became Self Regulating Organizations. Securities Amendments Act of 1975.

<sup>8</sup>June 6, 1934, ch. 404, Title I, sec. 17A (a)(I), as added June 4, 1975, Public Law 94-29, sec. 15, \*9 Stat.14.

<sup>9</sup>The June 4, 1975 amendment [Public Law 94-29, sec. 15, 89 Stat. 14] of the legislation of June 6, 1934 ch. 404, Title I, sec. 17A (a) (I).

<sup>10</sup>The Securities Act Amendments of 1975 added Sec. 17A, which among other items, required the SEC to "use its authority to facilitate the establishment of a national system for the prompt and accurate clearance and settlement of transactions in securities" with "due regard for the public interest, the protection of investors, the safeguarding of securities and funds, and maintenance of fair competition among brokers and dealers, clearing agencies, and transfer agents."

<sup>11</sup>Futures exchanges that have captive clearinghouses include: the Chicago Board of Trade; Chicago Mercantile Exchange; New York Mercantile Exchange; Commodity Exchange; Coffee, Sugar, & Cocoa Exchange; New York Cotton Exchange; Kansas City Board of Trade; and the Minneapolis Grain Exchange. The ICC division of the Options Clearing Corp. clears for the NY Futures Exchange, the Philadelphia Board of Trade, and the AMEX Commodities Corp.

<sup>12</sup>About 95 percent of equities are cleared through NSCC. The rest are cleared through the Philadelphia Stock Exchange's Stock Clearing Corp. and the Midwest Stock Exchange's Midwest Clearing Corp. Securities options clearing is centralized entirely within the Options Clearing Corp. (OCC). An interface exists between the OCC and each of the equity clearing corporations to effect delivery of the underlying equity securities when options contracts are exercised.

<sup>13</sup>For more on margins, and proposals to change margining systems, see chs. 4, 5, and 9.

<sup>14</sup>Both financial futures and commodity futures are considered "futures" under the Commodities Exchange Act.

<sup>15</sup>Thomas Russo, "The Futures Industry-Its Past and Future," *Commodities Law Letter*, March/April 1990.

<sup>16</sup>However, a centralized clearing and settlement system, the Regional Interface Operation (RIO), was in place in 1974, and was motivated by the securities industry's goal of improving operational efficiency and lowering costs.

**Table 6-1—U.S. Exchanges, Clearinghouses, and Depositories**

| <i>Equities markets.<sup>a</sup></i>              | <i>Clearinghouse/depository?</i>  |
|---|---|
| New York Stock Exchange (NYSE)                    | National Securities Clearing Corp. (NSCC)/Depository Trust Co. (DTC)                                |
| American Stock Exchange (AMEX)                    | NSCC/DTC  |
| National Association of Securities Dealers (NASD) | NSCC/DTC, Midwest Clearing Corp./Midwest Securities Trust Co., Stock Clearing Corp. of Philadelphia |
| Boston Stock Exchange (BSE)                       | NSCC/DTC  |
| Philadelphia Stock Exchange (PHLX)                | Stock Clearing Corp. of Philadelphia (SCCP)   |
| Midwest Stock Exchange (MSE)                      | Philadelphia Depository Trust (Philadep)  |
| Cincinnati Stock Exchange (CSE)                   | Midwest Clearing Corp. (MCC)/Midwest Securities Trust Co. (MSTC)                                    |
| Pacific Stock Exchange (PSE)                      | NSCC/DTC or MCC/MSTC  |
| <i>Total: 7 exchanges and the NASD</i>            | <i>Total: 3 clearinghouses</i>  |
| <i>Futures markets:</i>                           | <i>Clearinghouse:</i>   |
| Chicago Board of Trade (CBOT)                     | Board of Trade Clearing Corp. (BOTCC)   |
| Chicago Mercantile Exchange (CME)                 | CME Clearing House Division <sup>f</sup>  |
| New York Mercantile Exchange (NYMEX)              | NYMEX Clearing House Division   |
| Commodity Exchange Inc. (COMEX)                   | COMEX Clearing Association (CCA)  |
| Coffee, Sugar & Coma Exchange (CSCE)              | CSC Clearing Corp. (CSCCC)  |
| New York Cotton Exchange (NYCE)                   | Commodity Clearing Corp. (CCC)  |
| New York Futures Exchange (NYFE)                  | Internmarket Clearing Corp. (ICC)   |
| MidAmerica Commodity Exchange (MidAm)             | BOTCC   |
| Kansas City Board of Trade (KCBOT)                | KCBOT Clearing Corp. (KCBOTCC)  |
| Minneapolis Grain Exchange (MGE)                  | MGE Clearing House Division   |
| Chicago Rice & Cotton Exchange (CRCE)             | BOTCC   |
| Amex Commodities Corp. (AMEXCC)                   | Icc   |
| Philadelphia Board of Trade (PHBOT)               | Icc   |
| <i>Total: 13 exchanges</i>                        | <i>Total: 9 clearinghouses</i>  |
| <i>Options markets:</i>                           | <i>Clearinghouse:</i>   |
| Chicago Board Options Exchange (CBOE)             | Options Clearing Corp. (OCC)  |
| American Stock Exchange (AMEX)                    | Occ   |
| Philadelphia Stock Exchange (PHLX)                | Occ   |
| New York Stock Exchange (NYSE)                    | Occ   |
| Pacific Stock Exchange (PSE)                      | Occ   |
| National Association of Securities Dealers (NASD) | Occ   |
| <i>Total: 5 exchanges &amp; the NASD</i>          | <i>Total: 1 clearinghouse</i>   |

<sup>a</sup>There are numerous additional securities clearing agencies involved in securities markets other than the stock market.

<sup>b</sup>A clearing member may designate any clearinghouse to clear and settle stock traded on any exchange.

<sup>c</sup>A Clearinghouse is a department within the exchange, rather than separately incorporated.

SOURCE: Roger D. Rutz, "Clearance, Payment, and Settlement Systems in the Futures, Options, and Stock Markets," in CBOT, *The Review of Futures Markets*, vol. 7, No. 3, 1988, p. 348.

Securities clearing organizations have a statutory obligation to provide access to the clearing and settlement system to intermediaries that satisfy certain nondiscriminatory standards. Minimum capital levels differ among clearing entities as a function of the degree of exposure to default of clearing members. Accordingly, the level of initial net capital requirements of securities clearinghouses is lower than that for futures clearinghouses.<sup>17</sup> Equities exchanges and the over-the-counter (OTC) marketplace compete based on their respective strengths in

price, speed of execution, and depth of market. The costs of trade entry and comparison activities are sensitive to economies of scale, which contributed to the trend toward centralized clearinghouses, particularly for smaller exchanges.<sup>18</sup>

Many market participants now simultaneously trade in stock, options, and futures markets (rather than concentrating investment activity in a single marketplace). Markets for different financial instruments, which originally developed independently

<sup>17</sup>See Roger Rutz, "Clearance, Payments, and Settlement Systems in the Futures, Options, and Stock Markets," table 5, for examples of minimum capital levels, in expert paper in Bankers Trust Co. contractor report.

<sup>18</sup>Recently the Pacific Stock Exchange discontinued most of its captive clearing and depository operations, due to unprofitability; it now clears through NSCC and uses the Depository Trust Corp. for depository operations. OTA staff discussion with PSE official, August 1988. Earlier, the Boston Stock Exchange had ceased its clearing operations in favor of NSCC services.

and are regulated separately, are now linked. As a result of these linkages, participants simultaneously use the clearing and settlement processes of several marketplaces. Many industry observers believe that more attention needs to be given to disparities in cross-border markets, e.g., in timetables for settlement.<sup>19</sup>

Settlement times vary widely by type of financial instrument. For example, forward market trades involving mortgage-backed securities settle once a month; ‘when-issued’<sup>20</sup> trades in government bonds settle within 15 days; transactions in stock settle within 5 business days (but if equities on certain foreign exchanges are involved, settlement can take up to several months); transactions on stock options settle the next day; and futures and options on futures settle the next morning.

These differences in timetables for settlement can influence a market’s ability to compete with other markets for investor capital. Many trading techniques now in use, particularly among institutional investors, depend on the ability to trade rapidly across instruments and across markets. Financial instruments with longer settlement time frames may be less useful to these investors. Also, longer timetables for settlement carry comparatively more risk, because they allow more time for events that could cause one of the parties to the trade to default on payment or delivery.<sup>21</sup>

A related issue is the amount of time required to achieve finality of settlement, i.e., the moment when a transfer of funds becomes irrevocable.<sup>22</sup> The time between the moment when the funds transfer begins (as in writing a check, or wiring money from one bank to another), and the time when payment is actually received or guaranteed varies greatly from market to market. Banks acting for U.S. market participants can use the Federal Reserve’s Fedwire electronic money transfer system to achieve immediate (at the time of receipt by Fedwire) finality of settlement. (See box 6-A). Other systems may offer end of day finality of settlement, next day finality of settlement, or some other timetable.

## PROPOSED STRATEGIES FOR CHANGE IN U.S. CLEARING AND SETTLEMENT

The 1987 stock market crash put a public spotlight on clearing and settlement and raised questions about whether the process broke down under the strain. In the United States, the events of October 1987 stressed the clearing and settlement process, which while it did continue to function revealed a number of shortcomings. In exchanges, clearinghouses, and clearing member firms, trade processing systems had back ups because of unusually high trading volume. The Options Clearing Corp. (OCC) had difficulty obtaining current data to value options. A number of options clearing members had insufficient capital to meet their obligations. Some futures clearing members’ data entry systems became overloaded and some exchange’s trade matching systems were not able to reconcile trades within normal time schedules. There were problems with some risk management systems and questions about whether guarantee funds were sufficiently liquid or adequate in size. Late payments into and out of clearinghouses occurred for some participants in the options and futures markets.

On October 19, 1987, the Chicago Mercantile Exchange collected \$1.6 billion in margin payments from its clearing members, and another \$2.1 billion on October 20th, both far in excess of normal collections. The OCC collected \$2 billion in total over those 2 days, also a much higher amount than normal. Stock clearing corporations in the United States processed over \$100 billion in stock deliveries during the week of October 26th. A number of market participants were unable to obtain cash from their banks to meet obligations on time, because some banks delayed providing credit to participants until their creditworthiness could be established with confidence and a few banks refused to accept options contracts as collateral for loans. The Fedwire operated by the Chicago Federal Reserve for a few

<sup>19</sup>Comments from participants at the OTA workshop on clearing and settlement, August 1989, among others. See also, Group of Thirty, ‘‘U.S. Working Group Report on Compressing the Settlement Period,’’ Nov. 22, 1989.

<sup>20</sup>‘‘When-issued’’ refers to a transaction made conditionally because the security, although authorized, has not been issued.

<sup>21</sup>J. Peake, A. Madhavan, and M. Mendelson, ‘‘Risky Business: The Clearance and Defilement of Financial Transactions,’’ reprinted in the *Journal of International Securities Markets*, London, vol. 3, Spring 1989, pp. 7-13.

<sup>22</sup>Payment with an ordinary bank check becomes final only after several days, when the check is cleared by the bank; a certified check clears quickly, since it adds the backing of the issuing bank.

**Box 6-A—The Role of Fedwire**

Fedwire, operated by the Federal Reserve Bank System, is an electronic wire transfer system used both for transfer of funds and for book-entry transfer of government agency and Treasury securities between banking institutions. Any depository institution (all domestic commercial banks, foreign banks with branches or agencies in the United States, trust companies, savings banks, savings and loan associations, and FDIC-eligible credit unions) may maintain both book-entry securities accounts and cash accounts with the Federal Reserve. Currently, 3,619 do so.

Financial institutions hold cash and securities both for themselves and for their customers, who could include correspondent banks, governments, corporations, institutional investors, and individual investors. When a customer instructs his bank to move his assets on deposit to his counterparty's account (i.e., to "pay" someone, or to deliver securities for settlement), this is accomplished by simultaneous book-entry (credit and debit) of the cash and securities accounts that each bank maintains at the Federal Reserve System, and corresponding entries in the accounting system that each bank uses to keep track of its obligations to its customers. If the two counterparties use the same bank the transaction is effected by debiting and crediting the bank's internal accounting system, and the bank's account at Federal Reserve is unaffected.

On the day after a trade (T+1), the counterparties instruct their banks to move the money and securities required for settlement. The bank may only move securities if those securities are present in its book-entry account, however, some funds overdrafts are allowed. The Federal Reserve System has sought to reduce the size and frequency of "daylight" overdrafts. Some of the trades entering the Fedwire system have not yet been compared or matched. Even so, all payment instructions which enter the Fedwire system for settlement are immediately final. As a result, it is possible that a trade delivered against payment across the Fedwire might later turn out to have contained some discrepancy in the terms of the trade. If this happens, the trade can be reversed, just before the Fedwire closes for the day.

hours on October 20th, adding to delays in electronic funds transfers.

Studies of clearing and settlement during the 1987 crash include, among others:

- The Brady Commission (formally known as the Presidential Task Force on Market Mechanisms), *Report to the President of the United States*, January 1988;
- The Commodity Futures Trading Commission, Division of Trading and Markets, *Follow-up Report on Financial Oversight of Stock Index Futures During October 1987*, Jan. 6, 1988;
- The Securities and Exchange Commission, Division of Market Regulation, *The October Market Break*, February 1988; and
- The Working Group on Financial Markets, *Interim Report to the President of the United States*, May 1988.

Among the main conclusions on the need for improvement in the clearing and settlement system were:

- the need to synchronize the activities of key institutions, with greater correlation between

the timetables for trading and payments going in and coming out of clearinghouses, and coordinated attention to the credit needs of market participants and the amount of time it takes credit providers to respond to those needs; and

- the need for increased monitoring of market participants by clearing and settlement organizations, and increased sharing of information about the risk exposure and credit positions of market participants.

Studies of the performance of the U.S. clearing and settlement industry during the October 1987 crash, described below, were reasonably consistent on the need for change in these systems. However, some left the impression that problems in clearing and settlement were on a par with those of the markets themselves. They were not, although they were extremely serious. But the crash did call attention to needed improvements. Gerald Corrigan, President of the Federal Reserve Bank of New York, noted that "the greatest threat to the stability of the financial system as a whole, . . . was the danger of a major default in one of these clearing and settlement systems."<sup>23</sup> David Ruder, former Chairman of the

<sup>23</sup>E. &-81 Corrigan, President of the Federal Reserve Bank of New York, in a speech at Payment System Symposium of the Federal Reserve Bank of Richmond, May 25, 1988, Williamsburg, VA.



**Table 6-2—Recommendations of Major Studies for Improved Clearing and Settlement**

|   | Brady Commission | The Interim Report of the President's Working group on Financial Markets | SEC Division of Market Regulation                     | CFTC                                      | Greenspan Testimony | Chicago Board of Trade           |
|---|------------------|--|---|---|---------------------|----------------------------------|
| Clarify the legal status of the obligation incurred by a bank when it guarantees payment to settle a trade or margin call . . . . .   |                  | Yes  | Yes   | Yes                                       | Yes                 |                                  |
| Create a unified regulatory environment for all financial instruments in a country . . . .  | Yes              |  |   |   |                     |                                  |
| Create a centralized system of market participants positions within and across markets as well as general market conditions . . . . . | Yes              | Yes, start by having more exchanging of information                      |   | Yes                                       |                     |                                  |
| Create a link between all U.S. clearinghouses . . . . .   | Yes              |  |   |   |                     |                                  |
| Facilitate timely payments to meet settlement obligations . . . . .   |                  | Yes  | Yes   | Yes                                       | Yes                 |                                  |
| Allow Brokers to cross-margin their house accounts across several exchanges . . . . .   | Yes              | Yes  | Adopted trial program after publication of the report | Adopted program publication of the report |                     | No (specific disagreement noted) |

SOURCE: Bankers Trust, *Study of International Clearing and Settlement*, OTA contractor report, October 1989, p. 250.

SEC, said: “. . . a major failure in any one of these clearing systems, or of a major firm, has the potential to affect all the other systems, other participants, and even the banking system.”<sup>24</sup>

In a report on the 1987 market break, the Brady Commission commented:

The possibility that a clearinghouse or a major investment banking firm might default, or that the banking system would deny credit (liquidity) to market participants, resulted in certain market-makers curtailing their activities and increased investor uncertainty.

In other words, it is not sufficient for the clearing, settlement, and payment systems to avoid collapse. Their strength must be such that market participants will have enough confidence in the robustness and integrity of the systems to avoid taking actions which could bring them down.

Table 6-2 shows some of the major recommendations which appeared in all or several of the major U.S. reports on the crash. The first common recommendation is that regulators should clarify the legal status concerning finality of payment of the obligation incurred by a bank when it guarantees payment to settle a trade or margin call. Clearinghouses are concerned about the risk that exists between the time a bank pledges to make a payment and the time the payment is actually made.

Equities in the United States are paid for with clearinghouse checks which are, in essence, next-day funds guaranteed by a money center bank. In futures and options markets, a call for margin is a means of ensuring the investor's ability to meet his obligations; the margin call is made to a bank on behalf of its customer (a clearing member of the exchange in the case of futures, or a member of the clearing organization in the case of options). When banks were queried as to whether they would

<sup>24</sup>David S. Ruder, former Chairman of the Securities and Exchange Commission, “October Recollections: The Future of the U.S. Securities Markets,” speech at the Economic Club of Chicago, Oct. 20, 1988, p. 15.

respond to margin calls in the futures industry (prior to October 1987), they would either actively endorse their willingness to pay, or passively endorse it by prior understanding that the bank would honor the payment unless it objected by a certain time of day. Even when a bank gives an active endorsement, the time between that commitment and the actual movement of funds constitutes a risk period, because there is always the possibility that some adverse event could prevent payment.

In several of the crash reports, it was argued that options and futures clearinghouses should firm up the legal agreement with their settlement banks to lock in payment at the same time that the banks confirm their willingness to meet the settlement obligation of the clearing member. But even after clearinghouses have freed up their agreements with their banks, there remains the risk that a settlement bank may refuse to make a margin commitment.

Another recommendation in several of the reports on the 1987 crash was that a system should be created to monitor market participants' positions in all markets, as well as general market conditions, in order to improve the assessment of risk. Information sharing did, in fact, occur in October 1987, despite the fact that there were few, if any, formal arrangements in place across markets. Some arrangements for sharing information have begun to be institutionalized.<sup>25</sup> Although these arrangements provide clearinghouses and banks considerably more information with which to assess risk, liquidity, margin, and credit, they still fall short of providing a full risk profile. For example, participants may have undisclosed positions in unregulated markets, such as foreign exchange, leveraged buyouts, or in foreign markets, complicating risk assessment.

There is some resistance within the clearing and settlement industry and from market users to sharing

certain types of information.<sup>26</sup> As one example, the OCC is concerned that shared information would give an unintended competitive advantage to the Board of Trade Clearing Corp., the "system operator," or central repository.<sup>27</sup> Also of concern are the costs of gathering the information and its timeliness. Another concern is that for increased information sharing to be effective, there must be improvements in the information gathering and utilization operations of some of the organizations involved. For example, many clearing banks need to improve their knowledge of cross-market and cross-product positions within their own holdings and those of their customers. Some organizations might not be ready to incorporate this new data into their decision making; it is not at all certain that a bank, having been supplied risk information about its customers on October 19th, 1987, would have been able to make better credit decisions.

A fourth area of concern in the market crash reports is the need for timely payments to meet settlement obligations. Recommendations range from sharing data on payments and credits to extending the hours of Fedwire. These ideas had been discussed even before the 1987 market crash. Markets have evolved faster than the banking system's ability to move money rapidly. But given the underlying credit implications for the banks, having the ability to speed up the payments still may not ensure that the payments will be made if the banks perceive the borrower's position to be risky.

An earlier morning opening of the Fedwire, and agreement by the major money center banks to provide staff during these early hours, could help in supporting the Chicago futures clearinghouses.

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<sup>25</sup>Arrangements for sharing position and risk assessment information include: the Monitoring Coordination Group, established prior to October 1987, which includes all Securities Clearing Group (SCG) members and all securities and options exchanges and the NASD; and the newer SCG, composed of all equity securities clearing and depository entities in the United States. Futures markets are not yet participating in these groups; however, the futures clearinghouses have shared pay/collect information among themselves since 1986. There has also been some sharing of risk information between the NYSE and the CME, and of pay and collect data between the CME and CBOT since 1982. The OCC recently joined the daily information-sharing system, providing futures clearinghouses for the first time with information on market participants in options on equities.

<sup>26</sup>There was broad agreement among regulators, clearinghouses, and others, about the value of sharing risk-exposure information, "but no agreement on what information, when and where it should be provided, or how much is adequate, as summarized by Gerard Lynch, Morgan Stanley, at OTA's meeting of experts on clearing and settlement, Aug. 22, 1989.

<sup>27</sup>OCC letter to OTA, Feb. 5, 1990. The OCC points out that the repository for shared information, if it is a market participant having vested interests, possesses data that might enable it to protect itself against loss earlier than others who depend on it for information dissemination. This raises the question of whether a disinterested, independent, entity, such as a Federal regulator or a private contractor, would be preferable as the system operator. The NSCC notes concern for BOTCC access to confidential information and raises the question of whether futures clearing organizations may misinterpret pay/collect data and take inappropriate action based on it.

Other measures also should be considered. For example, the U.S. banking system is not equipped to settle transactions in non-U.S. dollar currencies. This is because they can only move foreign currencies with finality at times when the foreign central bank is open.<sup>28</sup> Another example involves the use of letters of credit for margin. Since banks consider some types of letters of credit to be conditional, e.g., “standby” letters of credit, unexpected delays in payment can result, particularly during times of severe market stress.

Two final items common to many of the crash reports were the recommendations for cross-margining and futures-style margining of the accounts of clearinghouse members. These were discussed in chapter 5.

The Brady Commission Report recommended a “unified” clearance system across all markets.<sup>29</sup> This was later clarified to mean not necessarily a single clearinghouse, but rather coordinated mechanisms among existing clearinghouses to facilitate safe and efficient clearance and settlement of equities and related options and futures that the Brady Commission determined comprise a single market. The SEC proposed legislation in June 1988 that would direct the SEC and CFTC “to facilitate the establishment of linked, coordinated, or centralized facilities for clearance and settlement’ for stocks and related futures and options.<sup>30</sup>

The key objectives that policymakers want to achieve are to facilitate assessment of the credit or solvency risk of participants across all markets, to maintain liquidity, and to assure the integrity of the settlement system and the larger national payment system of which it is an integral part. The need for increased attention to the clearing and settlement

process was reemphasized in testimony of Treasury Secretary Nicholas Brady before the Senate Committee on Banking, Housing, and Urban Affairs, October 26, 1989. The Administration called for legislation to speed the process of refining and coordinating inter-market clearing and settlement. Yet, consensus on how to achieve these objectives has been elusive, both because of genuine differences in the various financial products and procedures and because of vested interests.

Richard Breeden, Chairman of the SEC, drew a lesson from the Drexel bankruptcy in January 1990: “The clearance and settlement system deserves immediate attention.”<sup>31</sup> The events surrounding the bankruptcy, according to Breeden, demonstrated the necessity of provisions in the proposed Market Reform Act (S.648) that would give the SEC the right to information about holding companies of which securities firms are affiliates. In the case of the Drexel bankruptcy, Breeden said, because the SEC did not have adequate information regarding the Drexel holding company and its unregulated affiliates, the broker-dealer’s capital “could have been depleted in a desperate but fruitless attempt to pay the parent firm’s unsecured creditors.” Breeden also told Congress:

A sudden collapse of a major broker-dealer such as DBL (Drexel Burnham Lambert, Inc.) could have had extremely adverse consequences on confidence in the marketplace, and on the smooth functioning of our clearance and settlement system.

DBL was a major broker-dealer, a member of most of the stock and commodity exchanges and clearinghouses, and a member of the National Association of Securities Dealers. DBL and a sister

<sup>28</sup>U.S. clearinghouses may have foreign-currency denominated derivative product contracts, although none are traded today, and they may choose to denominate margin calls in that currency. They can do this by having a U.S. bank provide payments and guarantee services, or by having non-U.S. bank provide these services. If a U.S. bank is used, the clearinghouse will require the bank to guarantee payment in the foreign currency until the foreign central bank opens and makes the payment final. In this case, the U.S. bank incurs risk regardless of whether FedWire is open, during that time interval between when its guarantee begins and when the foreign central bank’s payment is final. Alternatively, an off-shore settlement bank could be used.

<sup>29</sup>The Brady Report also recommended that a single government agency be given the authority for coordinating margin requirements and monitoring activities across marketplaces. This proposal is based on the view that all activities in the U.S. markets (securities, futures, options) are best coordinated by one agency and that authority should be given to the Federal Reserve Board. The FRB appears unwilling to take on this function.

<sup>30</sup>Treasury Secretary Nicholas Brady later recommended deleting the term “centralized” from a section of S. 648, “The Market Reform Act of 1989,” which, as revised, would direct the SEC and CFTC to facilitate linked or coordinated clearance and settlement of inter-market transactions. Letter from Secretary Brady to Sen. Donald W. Riegle, Chairman, Banking, Housing, and Urban Affairs, Oct. 24, 1989, p. 6. See also H.R. 3656, “Coordinated Clearance and Settlement Act of 1989,” Nov. 14, 1989.

<sup>31</sup>This account is based on testimony of Richard C. Breeden, Chairman, U.S. Securities and Exchange Commission, before the Senate Committee on Banking, Housing, and Urban Affairs, concerning the bankruptcy of Drexel Burnham Lambert Group, Inc., Mar. 2, 1990. All quotations are from this testimony.

company, Drexel Burnham Lambert Government Securities, Inc. (GSI), a bond dealer, were regulated affiliates of a holding company, Drexel Burnham Lambert Group, Inc. (Drexel), which also had other unregulated affiliates. The holding company and its subsidiaries, at the end of 1989, had approximately \$28 billion in assets and nearly \$836 million in stockholder's equity, and had long- and short-term borrowings of about \$3.5 billion.

Many large broker-dealer holding companies do a great deal of unsecured borrowing by issuing commercial paper. To accomplish this conservatively, however, the holding company should hold liquid, pledgeable, assets as a back-up. This would permit the holding company to satisfy its liquidity needs through secured bank loans if, for any reason, it loses access to the commercial paper market. Drexel (the holding company) was a highly leveraged major company that concentrated on developing and selling high-yield (junk) bonds, and financed its operations largely with unsecured loans (commercial paper, etc.). In 1989, after 47 issuers defaulted on \$7.3 billion in bonds, the market for junk bonds declined sharply and became less appealing to banks as collateral. As Drexel's revenue stream dried up, the firm became even more dependent on outside financing. It began to have difficulty in rolling over its short-term loans. Drexel then began to drain off the excess capital of its affiliates DBL and GSI.

The SEC sets net capital requirements for broker-dealers, among other things, to protect customers (whose accounts are insured under the Securities Investors Protection Corp. for up to \$500,000 in securities and cash, and \$100,000 maximum for cash claims). The New York Stock Exchange (NYSE) can impose additional, even more stringent, financial responsibility standards on its members "when a firm is faced with uncertainties in its business or potential liquidity problems." An objective of the SEC's customer protection rule is to ensure that brokerage firms only use customers' margin securities or free credit balances (cash payable on demand) to finance other customer's lending (i.e., not to finance the brokerage firm's own positions, investments, or operations). To the extent that customer money is not used in this manner, it must be placed in a special bank account for the benefit of the customer. In 1989, the SEC and the NYSE were

monitoring DBL closely because the firm had recently agreed to pay \$650 million in penalties for felony insider trading.

Neither the SEC or the NYSE have any oversight or regulatory authority over the parent company, Drexel, or its unregulated affiliates. They had no sure source of information about Drexel. As lenders pulled back, Drexel drew capital from both DBL and GSI (in the form of loans) without notifying the NYSE or the SEC. The SEC was informed by the staff of the New York Federal Reserve Bank that Drexel and its unregulated subsidiaries were experiencing financial difficulties.

The NYSE and the SEC then instructed DBL not to make further loans to its holding company, Drexel. Most of DBL's customer accounts had already been sold to other firms, but the broker-dealer was still holding 30,000 customer accounts totaling \$5 billion, which would be at risk if DBL's capital was drained off by Drexel. Drexel struggled to come up with plans to liquidate some of its inventory and take other steps to rebuild its capital reserves, but these plans depended on its ability to continue to get short term financing for its day-to-day trading and the renewal of its unsecured loans. As an interim measure, the NYSE and the SEC allowed DBL to lend Drexel \$31 million to prevent its commercial paper from being dishonored in the clearing process, and also allowed DBL to post \$7 million margin at the Chicago Mercantile Exchange on behalf of DBL Trading (a subsidiary).

The New York Federal Reserve Bank, the U.S. Department of the Treasury, and the Federal Reserve Board, as well as the NYSE and the SEC, became involved in around-the-clock discussions. These regulators worked cooperatively to "reduce the potential for systemic risks of a cascade of failures." Working closely with the New York Federal Reserve Bank, the SEC facilitated the transfer of DBL's customer accounts to other financial institutions and to liquidate DBL's proprietary positions. These ends were accomplished successfully, without penalizing retail customers or the U.S. taxpayer. However, if at the time of this crisis, the markets had been under stress or other large brokerage firms had been faltering (and thus unable to take on DBL's customer accounts), the U.S. Government might

have had to face extensive settlement gridlock and a potential for “a cascade of failures.”<sup>32</sup>

Among other problems hampering integrated clearing and settlement are fundamentally different forms of margining; unique daily (and intra-day) mark-to-market pricing and margining of futures; and disparate time periods for settlement—1 day for futures and options v. 5 days for equities. Another difference is that both futures and options contracts are generated by the trade itself, and are guaranteed by a clearinghouse. Unlike the fixed number of equity shares outstanding at any time, there is no freed limit on the number of options and futures contracts. Finally, settlement of equity trades generally mark the end of risk to financial intermediaries (banks, brokers, clearinghouses), whereas the settlement of the opening of an options or futures contract, or the payment of variation margin on that contract, reduces, but does not eliminate, financial intermediaries’ risk. The latter risk terminates when the position is closed and settled.

Vested interests within the established clearing and settlement systems, and possibly among their Federal regulators, are important barriers to consolidating, or standardizing, domestic clearinghouse operations. There are also arguments concerning the benefits of competition among Self Regulatory Organizations (SROs) and among regulators.<sup>33</sup> Representatives from the clearing and settlement industry and others have been strong advocates for maintaining the status quo.<sup>34</sup>

Consideration for a unified or integrated clearing and settlement system raises a number of public

policy issues. Arguments against it range from the inherently different character of futures, options, and equities clearing and settlement systems to the dangers of monopolies—including lower efficiency (or higher prices) and the potential for stifling innovation.<sup>35</sup> Perhaps the most often cited argument is that separate systems can act as “firewalls” to prevent a rapid breakdown of the system in the face of a major catastrophe. Others point out that futures clearing organizations remain non-standard in their rules.<sup>36</sup>

There is a question of whether the public interest in further strengthening the clearing and settlement system against disruption is sufficiently paramount to foster further concentration, or standardization, of clearing functions at the expense of competition. There is also a question of whether clearinghouses should be unified by products or across markets. One alternative, which is being followed, is to retain specialized clearing and settlement systems while making improvements, such as information sharing concerning participants’ risk profiles across markets.

## EFFORTS BY THE GROUP OF THIRTY TO REDUCE DIFFERENCES IN CLEARING AND SETTLEMENT

Improvement of clearing and settlement for global or cross-border trading in equities is being addressed by the Group of Thirty, an independent, non-profit organization of business-persons, bankers, and rep-

<sup>32</sup>In the case of the failure of Drexel Burnham Lambert, Inc., markets and clearinghouses were able to minimize the financial impact of the failure by transferring customers’ accounts and assets to other, solvent firms. But the experience caused the Federal Reserve Bank of New York president, in July 1990, to encourage the private sector to establish three working groups to identify ways to avoid such problems before they arise, or to better contain them if they arise. One group will focus primarily on improvements in the operation of clearance and settlement systems, e.g., on approaches to reducing counterpart credit risk, including expansion of same-day delivery against payment to a broader class of financial instruments, particularly for certain transactions originating off-shore, and, sound netting systems. A second group will focus on contingencies, i.e., what should be done if some segments of the clearing, settlement, and payments system appear to gridlock, including ways to establish more structured approaches for coordination during emergencies. A third group will focus on legal and regulatory issues, including possible changes in bankruptcy laws, and regulatory issues in clearing and settlement. Initial agendas were being developed in mid-1990.

<sup>33</sup>See for example: Marc L. Weinberg, “Unified Clearing Draws Challenge,” *Barron’s*, February 1988; Roger D. Rutz, “Clearance, Payment, and Settlement Systems in the Futures, Options, and Stock Markets,” in CBOT, *The Review of Futures Markets*, vol. 7, No. 3, 1988, pp. 367-368; John C. Hiatt, remarks at CBOT Conference, November 1988; and Charles M. Seeger, *The Development of Congressional Concerns About Financial Futures Markets*, published in conjunction with the American Enterprise Institute for Public Policy Research.

<sup>34</sup>Roger D. Rutz, “Clearance, Payment, and Settlement Systems in the Futures, Options, and Stock Markets,” in CBOT, *The Review of Futures Markets*, vol. 7, No. 3, 1988, pp. 346-370.

<sup>35</sup>Ibid.

<sup>36</sup>“In the areas of clearing, for example, despite efforts to enhance cooperation and information sharing among the various clearinghouses, they remain stand-alone entities with very different rules, in many cases, even though they perform essentially the same functions. Some of the most basic questions, such as the liability of Futures Commission Merchant (FCM), should a clearinghouse become insolvent, remain unanswered, or at least subject to dispute.” Thomas Russo, “The Futures Industry—Its Past and Future,” *Commodities Law Letter*, March-April 1990.

representatives of financial institutions from 30 developed nations.<sup>37</sup> The Group of Thirty addresses multinational financial and economic issues, including Third World debt. The Group's recommendations for the world's securities markets are aimed at "maximizing the efficiency and reducing the cost of clearance and settlement," and thereby reducing risk. They have set target timetables of 1990 for some objectives and 1992 for others. In a report released in 1989,<sup>38</sup> the Group concluded that:

While the development of a single global clearing facility was not practical, agreement on a set of practices and standards that could be embraced by each of the many markets that make up the world's securities system was highly desirable, . . . and (reached) agreement that the present standards were not acceptable.

Their recommendations are:

1. By 1990, all comparisons of trades between direct market participants (i.e., brokers-dealers, and other exchange members) should be compared within 1 day after a trade is executed, or "T+1."<sup>39</sup>
2. Indirect market participants-institutional investors, or any trading counterparties which are not broker-dealers-should be members of a trade comparison system which achieves positive affirmation of trade details.
3. Each country should have an effective and fully developed central securities depository,

organized and managed to encourage the broadest possible industry participation.<sup>40</sup>

4. Each country should study its market volumes and participation to determine whether a trade netting system would be beneficial in terms of reducing risk and promoting efficiency.
5. Delivery versus payment (DVP) should be the method for settling all securities transactions.
6. Payments associated with the settlement of securities transactions and the servicing of securities portfolios should be made consistent across all instruments and markets by adopting the "same day" convention.<sup>41</sup> (*No date has been set for achieving this objective.*)
7. A "rolling settlement" system<sup>42</sup> should be adopted by all markets. Final settlement should occur on T+3 by 1992. As an interim target, final settlement should occur on T+5 by 1990 at the latest, except where it hinders the achievement of T+3 by 1992.
8. Securities lending and borrowing should be encouraged as a method of expediting the settlement of securities transactions.<sup>43</sup> Existing regulatory and taxation barriers that inhibit the practice of lending securities should be removed in 1990.
9. Each country should adopt the technical standard for securities messages developed by the International Organization for Standardization.<sup>44</sup>

<sup>37</sup>For a discussion of other international organizations' studies of clearing and settlement and related issues, see OTA's background paper, *Op. Cit.*, footnote 1, ch. 5.

<sup>38</sup>Group of Thirty, *Clearance and Settlement Systems in the World's Securities Markets* (New York & London, March 1989), p. 1.

<sup>39</sup>In the United States, where there is increasing use of automated trading systems in the stock exchanges and OTC markets, data required for comparison and automatic submission to the clearing system is automatically recorded. Such systems now process two-thirds of NYSE transaction volume; a large proportion of AMEX volume; and one-third of OTC equity volume. These transactions are pre-matched and reported directly to the clearing system, and have been reported on T+1 since the mid-1980s. Both the NYSE and AMEX have on-line trade correction facilities. The rules of the National Securities Clearing Corp. require that all trade data not already locked in by the automated trading systems must be reported by both trading counterparties by 2 a.m. on T+1.

<sup>40</sup>The principal function of a central securities depository is to immobilize or dematerialize securities. This function permits the processing of transactions in "book entry" form, which is the basis for achieving efficient and low risk settlement of transactions by transferring ownership from one account to another by a simple debit or credit on the books of the depository.

<sup>41</sup>Some markets use "same-day" funds, while others use "next-day" funds for settlement. Adoption of a single method will improve the efficiency of the accounting and payment systems, set the stage for subsequent full automation, and facilitate other improvements such as finality of payment, irrevocability, and bank guarantees.

<sup>42</sup>In a rolling settlement system, trades settle on all business days of the week, which limits the number of outstanding (unsettled) trades and reduces market exposure to risk. The goal for the long term is same-day settlement.

<sup>43</sup>Securities lending and borrowing has become an effective tool used by market participants to satisfy their obligations to deliver or pay a trading counterpart. In its absence, a failure to deliver can have the consequence of creating a series of additional failed transactions as one party's failure to receive becomes the cause of its failure to deliver on its obligations.

<sup>44</sup>The ISO is a worldwide standards-making body. ISO standard 7775 applies to Securities Message Types; standard 6166 applies to International Securities Identification Number (ISIN). Currently, no worldwide securities numbering system is in use. Countries each use their own unique numbering system for identification rendering them impractical for cross-border transactions.

**Table 6-3--Group of Thirty: Current Status of International Settlement Recommendations-Equities**

| Recommendation No.       | 1                 | 2                               | 3                             | 4                  | 5   | 6                         | 7              | 8        | 9                  |
|--------------------------|-------------------|---------------------------------|-------------------------------|--------------------|-----|---------------------------|----------------|----------|--------------------|
| Country                  | Comparison on T+1 | Institutional Comparison System | Central Securities Depository | Securities Netting | DVP | Rolling settlement on T+5 | Same-Day Funds | ISO/ISIN | Securities Lending |
| Australia . . . . .      | Yes               | No                              | No                            | No                 | Yes | Open                      | No             | No       | Yes                |
| Austria . . . . .        | Yes               | No                              | Yes                           | No                 | No  | Weekly                    | Yes            | No       | No                 |
| Belgium . . . . .        | No                | No                              | Yes                           | No                 | Yes | Fortnightly               | Yes            | No       | Yes                |
| Canada . . . . .         | Yes               | Yes                             | Yes                           | Yes                | Yes | T+5                       | Yes            | No       | Yes                |
| Denmark . . . . .        | Yes               | No                              | No                            | No                 | Yes | T+3                       | Yes            | No       | Yes                |
| Finland . . . . .        | Yes               | No                              | No                            | No                 | Yes | T+5                       | No             | No       | No                 |
| France . . . . .         | Yes               | No                              | Yes                           | No                 | No  | Monthly                   | Yes            | No       | Yes                |
| Germany . . . . .        | Yes               | No                              | Yes                           | No                 | Yes | T+2                       | Yes            | No       | No                 |
| Hong Kong . . . . .      | Yes               | No                              | No                            | No                 | Yes | T+1                       | No             | No       | Limited            |
| Italy . . . . .          | Yes               | No                              | Yes                           | No                 | Yes | Monthly                   | Yes            | No       | Limited            |
| Japan . . . . .          | Yes               | No                              | No                            | Yes                | Yes | T+3                       | No             | No       | Yes                |
| Korea . . . . .          | No                | No                              | Yes                           | No                 | Yes | T+2                       | No             | No       | No                 |
| Netherlands . . . . .    | Yes               | No                              | Yes                           | Yes                | Yes | T+5                       | No             | No       | Yes                |
| Norway . . . . .         | Yes               | No                              | No                            | No                 | Yes | T+6                       | Yes            | No       | No                 |
| Singapore . . . . .      | Yes               | No                              | No                            | No                 | Yes | T+5                       | No             | No       | Yes                |
| Spain . . . . .          | Yes               | No                              | No                            | No                 | No  | Weekly                    | No             | No       | Limited            |
| Sweden . . . . .         | Yes               | No                              | Yes                           | No                 | Yes | T+5                       | No             | No       | Yes                |
| Switzerland . . . . .    | Yes               | No                              | Yes                           | No                 | Yes | T+3                       | Yes            | No       | Yes                |
| Thailand . . . . .       | Yes               | No                              | Yes                           | Yes                | Yes | T+4                       | Yes            | No       | No                 |
| United Kingdom . . . . . | Yes               | Yes                             | No                            | Yes                | No  | Fortnightly               | No             | No       | Limited            |
| United States . . . . .  | Yes               | Yes                             | Yes                           | Yes                | Yes | T+5                       | No             | No       | Yes                |

**SOURCE:** Updated from *A Comparative View: The Group of Thirty's Recommendations and the Current U.S. National Clearance and Settlement System*, (New York City, NY: Morgan Stanley & Co. June 1989).

Table 6-3 compares nine of the Group of Thirty recommendations with the present status of clearing and settlement procedures in 21 countries, including the United States. Major changes will be required by many countries in order to meet these recommendations by 1992.<sup>45</sup> Table 6-4 shows the points of agreement from recent studies conducted by the International Society of Securities Administrators (ISSA), the European Community (EC), the Group of Thirty (G-30), and the Federation International des Bourses de Valeurs (FIBC). In the United States, which is well-positioned relative to other countries, automated systems will facilitate trade matching on the trade date and settlement of all trades within three days. But, in the United States, there are non-technological barriers to fully achieving the accelerated trade and settlement objectives, some of which have been acted on recently. For example:

- More stocks must be immobilized in book entry form; this means that retail customers may have

to abandon their pattern of receiving certificates of ownership for their stock shares.

- The pattern of mailing personal checks to pay for stock purchases will have to change to a more rapid payment method such as electronic bank-to-bank transfer of guaranteed funds.
- The Federal Reserve System's Regulation T, which addresses margin regulations for broker-dealers, has just been modified. Since the maximum allowable time for clearing and settlement of trades in the United States is different from those of many other countries, some flexibility is needed in tying the customer's time period for payment to the foreign settlement date. In March 1990, Regulation T was modified to allow the maximum time for payment to agree with the foreign settlement period, provided that period does not exceed the current U.S. 35-day maximum allowable period for settling cash (delivery against payment) transactions.<sup>46</sup>

<sup>45</sup>The Group of Thirty met in London in mid-March 1990, to discuss worldwide progress toward implementing its nine recommendations. See *Clearance and Settlement Systems Status Reports: Spring 1990*, Group of Thirty, New York and London, which covers the progress of 17 countries. While the obstacles facing each nation and the efforts required of each to comply with the recommendations are disparate, there was general acceptance of the recommendations.

<sup>46</sup>See 55 Fed. Reg. 11158, Mar. 27, 1990. This 35-day period is separate from the 5-day and 3-day settlement periods discussed elsewhere. It refers to the maximum allowable time period for settlement in the event of unavoidable delay, e.g., a payment lost in the mail, and it does not apply to reasons such as a customer being unable or unwilling to make payment or deliver securities.

**Table 6-4-Recommendations From Major International Studies**

| Aspect of operation   | Report           |                  |      |      |
|---|------------------|------------------|------|------|
|   | ISSA             | EEC              | G-30 | FIBV |
| Two-sided trade matching . . . . .                                      | —                | —                | Yes  | Yes  |
| One-sided trade comparison . . . . .                                    | —                | —                | Yes  | Yes  |
| National central securities depository <sup>a</sup> . . . . .           | Yes              | Yes              | Yes  | Yes  |
| Evaluate securities netting . . . . .                                   | Yes <sup>b</sup> | Yes <sup>c</sup> | Yes  | Yes  |
| Delivery versus payment . . . . .                                       | Yes              | Yes              | Yes  | Yes  |
| Rolling settlement . . . . .  | Yes              | Yes              | Yes  | Yes  |
| Same-day funds . . . . .  | Yes <sup>d</sup> | Yes <sup>e</sup> | Yes  | Yes  |
| Use of ISO standards for message formatting . . . . .                   | Yes              | Yes              | Yes  | Yes  |
| binding for settlement. . . . .   | Yes <sup>f</sup> | Yes              | Yes  | Yes  |
| Cross-border Central Securities Depositories should be linked . . . . . | Yes              | Yes              | —    | Yes  |
| Securities should be immobilized in country of issuer . . . . .         | Yes              | Yes              | —    | Yes  |

<sup>a</sup>Depositories for securities are already widely used in the United States.

<sup>b</sup>Included as part of the risk reduction/resolution recommendation in the report.

<sup>c</sup>Included as part of the risk reduction/resolution recommendation in this report.

<sup>d</sup>Included as a subset of the delivery versus payment recommendation of this report.

<sup>e</sup>Included as part of the currency accounting recommendation of this report.

<sup>f</sup>Included as part of the risk reduction/resolution recommendation in this report.

SOURCE: Bankers Trust Co. adapted from Federation International des Bourses de Valeurs (FIBV) document.

- Changes also have been made in the margining of foreign securities in U.S. accounts with foreign currency-denominated cash and securities.<sup>47</sup>

Implementation plans for the Group's recommendations were initiated or considered by its members' governments beginning in the spring of 1989. The U.S. Working Committee of the Group of Thirty met in May 1989 with representatives from exchanges, the National Association of Securities Dealers (NASD), clearing corporations, transfer and depositories firms, banks, regulators, and others, to begin discussing the recommendations. David Ruder, then SEC Chairman, noted at the 1989 meeting that the Group's recommendations are consistent with pub-

lished policy objectives of the SEC.<sup>48</sup> He listed other areas that still require attention, such as capital adequacy standards for market participants, information sharing among clearing entities, and the interaction of derivative markets.<sup>49</sup> The U.S. Advisory, Steering, and Working Committees reconvened a meeting on March 1, 1990, to discuss progress on the recommendations related to same-day funds and shortening the time to settlement. The Federal Reserve Board is taking some actions to accommodate these issues and others. Officials of U.S. regulatory agencies generally are highly supportive of the U.S. Advisory, Steering, and Working Committee's efforts.<sup>50</sup>

These proposals and efforts are a starting point for improvement, but some of these will require supplementary actions by the U.S. Congress and other governments.<sup>51</sup>

The reforms suggested by the President's Working Group on Financial Markets, the Group of Thirty, and other organizations are being taken seriously in the United States. Several recent reforms have been made in the U.S. equities markets, many of which predate the recommendations of the Group of Thirty. These include:<sup>52</sup>

#### . Trade Processing

- The NYSE in 1988, began developing an on-line trade reconciliation system which has evolved into its current overnight Comparison System.
- The NSCC implemented earlier input and output time frames to facilitate trade matching on the day after the trade (T+1).
- The NSCC is participating as part of the Group of Thirty, U.S. Working Committee, in the evaluation of ways to shorten the timetable for settling equities trades to T+3 (from the current T+5).
- The NASD has implemented a Trade Acceptance Reconciliation System (TARS) for

<sup>47</sup>Ibid.

<sup>48</sup>Policy Statement of the U.S. Securities and Exchange Commission, "Regulation of the International Securities Markets," November 1988 and Release No. 33-6807, Nov. 14, 1988, Fed. Reg. 46963, Nov. 21, 1988.

<sup>49</sup>David S. Ruder, "Remarks on the Group of Thirty Report on International Clearance and Settlement," May 15, 1989.

<sup>50</sup>Comments by G. Corrigan, president of the Federal Reserve Bank of New York and Commissioner Mary Schapiro, SEC, at the March 1990 meeting of the U.S. Committee.

<sup>51</sup>Group of Thirty, *op. cit.*, footnote 19; and Bankers Trust report, *op. cit.*, footnote 2, P. 206.

<sup>52</sup>For an evaluation of progress on implementing the recommendations of the President's Working Group on Financial Markets relating to clearing and settlement, see General Accounting Office, *Clearance and Settlement Reform: The Stock, Options, and Futures Markets Are Still at Risk*, GAO/GGD-90-33, April 1990.



same-day or next-day automated reconciliation of unmatched trades and is currently phasing in its Automated Confirmation Transaction (ACT) system for same-day comparison of all trades not already locked in through automated execution systems.

● *Risk Management*

- Information sharing of the financial positions of participants who are active in multiple markets is being worked on by the Securities Clearing Group, which represents U.S. clearing organizations serving equity and equity options markets. This group is working to develop a system for sharing settlement, margin, and clearing fund at-risk exposure information about joint members.<sup>53</sup> An earlier, continuing, effort in the futures industry (the BOTCC'S system) to share pay-collect information is being expanded to include OCC pay/collect data. (There is still some concern by the OCC about the confidentiality and perishability of data, and unintentional competitive advantage.) In the United States, the trend is toward interfacing existing centralized risk information systems for derivative markets with the emerging centralized risk information system for equities markets.
- The NSCC has proposed to the SEC changes in its criteria for assessing risk-based contributions to guarantee funds from clearinghouse members, and to make earlier calls for additional contributions.<sup>54 55</sup>
- The SEC proposed an increase in capital adequacy requirements of full service broker-dealers from the present \$100,000 to \$250,000 to be phased in by January 1994.<sup>56</sup>

- The OCC initiated an intra-day margin call procedure directly to the clearing member's clearing bank, in contrast with the earlier procedure of contacting the member and allowing 1 hour for payment.
- The OCC has increased the initial net capital requirement upon application for clearing member status from \$150,000 to \$1 million.

In both domestic and international futures markets there are differences in clearing and settlement. There is, however, some commonality among U.S. domestic futures markets for financial safeguards, but even those common safeguards vary in form. These safeguards include: original margins for clearing members based on trades carried for their customers and their proprietary accounts; daily and intra-day marking-to-market and calling of variation margins; initial and maintenance margins for customers; clearinghouses serving as guarantors of trades; the posting of deposits by clearing members which may be called by the clearinghouse; systems for monitoring the risk positions of both clearing members and customers; and large trader reporting.

Clearinghouses have tended to structure themselves as fortresses, able to contain significant damage to their systems from internal causes with a hierarchy of safeguards or "firebreaks." Assumptions underlying the adequacy of firebreaks are increasingly less valid because of the growing linkages between futures, equities, and options markets; these linkages have become international.<sup>57</sup>

Concerns about whether or not futures margins levels in the United States are set appropriately have been addressed by the President's Working Group on Financial Markets, which concluded that they are set in a prudential manner and recommended no

<sup>53</sup>As of May 1990, the SCG was proceeding with its own system. OTA staff discussion with Robert Woldow, NSCC, May 9, 1990.

<sup>54</sup>Due to a recent change, now only 70 percent of NSCC clearing member's collateral may be in the form of letters of credit. In addition, the NSCC has obtained a bank line of credit of \$200 million. Data from Robert Woldow, Executive Vice President and General Counsel, NSCC, March 1990.

<sup>55</sup>There is continuing disagreement between the SEC and CFTC about the adequacy of guarantee funds at the Chicago Mercantile Exchange (CME), which the SEC believes is inadequate, particularly with its recent increase to \$40 million and credit lines that now exceed about \$250 million, and which the CFTC defends; and with those of the OCC, which the CFTC has criticized and the SEC defends. General Accounting Office, *Clearance and Settlement Reform: The Stock, Options, and Futures Markets Are Still at Risk*, GAO/GGD-90-33, April 1990 (SEC Comments), app. III, pp. 64, 67, 68, and (CFTC Comments), app. IV, pp. 78-80.

<sup>56</sup>SEC Release No. 34-27249, Proposed Rulemaking on Broker-Dealer Net Capital Requirements, Sept. 15, 1989.

<sup>57</sup>Michael Hewitt Senior Adviser, Finance and Industry Department, Bank of England, "Financial Integrity of Futures Markets," presented at the Futures and Options Market Regulators Symposium in Burgenstock, Switzerland, September 1989.

changes in margin-setting systems<sup>58</sup> (SEC Chairman Ruder dissented). Nevertheless, Federal Reserve Board Chairman Alan Greenspan, Secretary of the Treasury Nicholas Brady, and SEC Chairman Richard Breeden have since noted their concern that futures margins that are set too low tend to be raised during periods of market turmoil, reducing liquidity when it is most needed.<sup>59</sup> (See chs. 4 and 9.)

## POLICY ISSUES

Six areas of major concerns need to be addressed:

1. risks associated with default;
2. risks associated with the payment process;
3. information sharing;
4. technology;
5. standardization and harmonization;
6. shortening the time to settlement and using same-day funds.

### *Risks Associated With Default*

In the United States, the Securities Investor Protection Corp. (SIPC)<sup>60</sup> provides a level of protection to market users in equities, bonds, and equity-related options markets. The protections afforded to market users by exchanges and clearinghouses in futures markets vary and are extended mainly to clearing members of the exchange clearinghouse.<sup>61</sup> Insurance can never completely cover all losses. Some failures in securities markets are resolved through bankruptcy proceedings under the Federal Bankruptcy Code. The Bankruptcy Code relies

largely on State laws to determine rights to property. These may include State commercial law that often relies on the Uniform Commercial Code (UCC).<sup>62</sup> The UCC is being reexamined to reflect the realities of today's marketplace, especially as it applies to third-parties holding securities. Laws dealing with bank liquidation also need to be updated and made more consistent with other bankruptcy laws.<sup>63</sup> In nonregulated markets, such as foreign exchange, there is little investor protection. These are topics that warrant the attention of governments and the private sector.

### *Risks Associated With the Payment Process*

Domestic and world markets have led to innovations in the way payments are made for transactions. Increased volume of trading has heightened stress on payments systems. Issues that have arisen concerning payment risk include: delayed or inadequate bank credit, timetables for finality of settlement, and netting procedures. Problems may arise with 24-hour trading systems, for example, margin calls when banks are closed.

Bank officials must become more familiar with the processes and risks of clearing and settlement to make better and more expedient credit decisions, particularly in times of severe market volatility. At such times, the lack of adequate information on which to base credit decisions may force some banks to restrict credit unnecessarily.<sup>64</sup> This could exacerbate a downward market spiral. Knowledge about

<sup>58</sup>Interim Report of the President's Working Group on Financial Markets, May 1988, p. 5: "...current minimum margin requirements provide an adequate level of protection to the financial system. . ." More recently, however, the Administration appears to have taken a different view, namely, that futures margins are set too low, and that a single Federal agency should have day-to-day oversight "to harmonize margins between futures and stocks to protect the public." Testimony of Robert R. Glauber, Under Secretary of the Treasury for Finance, before the Senate Committee on Agriculture, Nutrition, and Forestry, May 8, 1990. There is also the view that higher initial margins with less frequent reviews might be safer than today's lower margins and more frequent reviews. Hewitt, op. cit., footnote 57.

<sup>59</sup>Oral testimony of Alan Greenspan, Chairman, Federal Reserve Board, before the Senate Committee on Banking, Housing, and Urban Affairs, Mar. 29, 1990. He said: "I was shocked" about the margin setting behavior in the futures markets in October 1989. When margins are set low, they have to be raised during market stress, reducing liquidity just when it is most needed.

<sup>60</sup>SIPC insures an investor's accounts up to \$500,000 for securities and cash against certain types of loss, e.g., the default of a broker. This includes a maximum of \$100,000 in cash per account. Securities Investor Protection Act, 1970.

<sup>61</sup>It should be noted that customers' losses stemming from Futures Commission Merchants' insolvencies have been rare. Insolvency losses from 1938 to 1985 amounted to less than \$10 million. National Futures Association study *Customer Account Protection*, Nov. 20, 1986, p. 13. The basic protection is the statutory requirement that 100 percent of customer funds be segregated. Commodities Exchange Act, Sec. 4d(2). Also, customers have first priority in commodity brokers insolvencies under the Federal Bankruptcy Code and CFTC bankruptcy regulations.

<sup>62</sup>The UCC is accepted on a State-by-state basis and amendments to it would still leave open the possibility of non-uniform treatment by the various states. The American Bar Association has a current project which is seeking improvements to this area.

<sup>63</sup>In earlier times, customers were inclined to keep possession of their securities certificates. More recently, many buyers of securities tend to leave their certificates on deposit with third-parties, e.g., banks, brokers, depositories.

<sup>64</sup>The Clearing Organizations and Banking Roundtable is addressing methods to assure that clearing members have adequate credit during times of market turmoil. There are currently concerns for the privacy and confidentiality of clearing members that hinder the attractiveness of the concept of a single center for complete information on all members' positions in all markets. This organization was started by the CME and BOTCC to begin a dialog among futures and equity-related clearing organizations, their Federal regulators, and clearing banks.

the riskiness of various financial instruments and trading techniques are important for lenders. Educational efforts of this kind are receiving some attention by the private sector, but more is probably needed.

The timetable for finality of settlement is a problem. Some payment systems, such as the FRB's Fedwire, offer immediate finality of settlement; other payment systems offer "end of the day" finality of settlement,<sup>65</sup> and others are on later timetables.<sup>66</sup> The shorter the time to finality of payment, the less is the clearinghouse risk. Timetables for finality of payment of settlement vary within the United States and internationally, as noted earlier.<sup>67</sup> The private sector and the regulators should harmonize disparate systems, at least to provide same-day finality of payment.

Netting of payments reduces the stress on payment systems by requiring market participants to pay (and receive) only the difference between the amounts each owes and is owed by others. This increases liquidity for market participants and reduces the risk that a market participant will default on either payment or delivery of securities. There is consensus among experts that legally binding netting should be expanded for payments and for securities delivery obligations. This issue must be addressed internationally by the private sector and regulatory authorities.

### *Information Sharing*

There is no central source of risk information for financial markets participants in spite of the large amounts of money often involved. Although some organizations in the clearing and settlement industry have arrangements among themselves for sharing

risk information about market participants, these arrangements are limited in scope. Thus, creditors are at a disadvantage because increasingly market participants trade on more than one exchange, in more than one market, and in the markets of more than one country.<sup>68,69</sup> A Bankers Trust survey of international clearinghouses and exchanges received 18 out of 20 responses favoring the sharing of risk position information "as useful or absolutely essential" among clearing and settlement organizations for the purpose of reducing clearing members' exposure risks.<sup>70</sup>

Increased automation could facilitate information sharing. This could lead to the development of a common format for reporting and distributing risk information, and standards for the timely delivery of risk information. Standards also are needed for evaluation of different risks in different markets: for example, a given dollar amount of financial obligations in one market may not equal the risk of a like financial obligation in another market.

### *Technology*<sup>71</sup>

Technology may or may not have a significant impact on clearing and settlement at low trading volume; but during high volume, technology is often a key to efficient clearing and settlement. Most of the U.S. clearing and settlement system is technologically advanced, although there are some areas needing improvement.

While clearinghouses have made significant strides in upgrading technological levels, the benefits of these upgrades can be diluted if all clearing members are not sufficiently advanced technologically to respond to new requirements of the clearinghouse for which the technology was intended. In

<sup>65</sup>Immediate finality of settlement is available only in the United States (through Fedwire) and in Switzerland. The CHIPS system in the United States, the CHAPS system in the United Kingdom, and the SAGITTAIRE system in France are examples of payment systems which offer end-of-day finality of settlement.

<sup>66</sup>See Bankers Trust report, *op. cit.*, footnote 2, vol. 1, p. 149.

<sup>67</sup>Respondents to a survey conducted by Bankers Trust Co. identified the use of "same-day funds" and "using electronic funds transfer instead of checks" as the major improvements that they would like to see in the way that payment systems work in clearing and settlement. In answer to another question on what changes or improvements respondents would like to see in the clearing and/or settlement process, the two most frequent responses were "standardization of settlement times internationally" and "centralized depositories in other countries."

<sup>68</sup>About 39 percent of the North American respondents to the survey conducted by Bankers Trust stated that they trade in markets in more than one country. See Bankers Trust report, *op. cit.*, footnote 2, vol. 1, p. 235.

<sup>69</sup>While U.S. clearinghouses operate in single markets, 20 percent of their member firms trade in more than one market. General Accounting Office, *op. cit.*, footnote 52, p. 4.

<sup>70</sup>Bankers Trust report, *op. cit.*, footnote 2, vol. 1, p. 231.

<sup>71</sup>This section is based on *IBM Study of Clearance and Settlement for the U.S. Congress—OTA*, Aug. 1, 1989, which is a part of the OTA contractor study: Bankers Trust, *op. cit.*, footnote 2. The IBM study is based on opinions of participating experts from the world's major exchanges and clearing organizations.

some cases, the weakest technological link may limit the responsiveness of the system during operational stress, particularly under high-volume conditions. These are areas where the private sector will have to take the initiative to bring about needed changes.

### ***Standardization and Harmonization***

Uniform codes of operation, or standards, for both the process<sup>72</sup> and the infrastructure<sup>73</sup> of clearing and settlement would make it easier to link the world's clearinghouses and depositories.<sup>74</sup> But progress in this area is likely to be slow because of the complexity of effecting change. The United States (with respect to equities and options markets) has standardized its domestic systems both in the process and the infrastructure.

Operating hours and daily schedules for banks and financial markets are not uniform, either domestically or internationally. Banks, including the Federal Reserve Bank, may be closed even if financial markets are open.<sup>75</sup> This is also true of central banks in other countries, which can cause problems as market participants invest in more than one country. The FRB, SEC, CFTC, and the Treasury Department must first face this issue in the United States.

### ***Settlement Period Duration***

The United States must shorten the settlement period for equities. This most likely would require immobilization of securities in a depository and the public would also benefit from a change to same-day funds.<sup>76</sup>

The elimination of physical delivery of certificates is the key to automating the clearance and

settlement systems. The U.S. Working Committee of the Group of Thirty concluded that the greatest deterrent to achieving shorter settlement at the retail level, or the "customer-side, is the physical delivery of certificates (which some retail investors insist on) and reliance on the postal system to accomplish this."<sup>77</sup> The retail customer must pay his broker on or before the settlement date. Each side requires the delivery to the broker of either "good funds" or certificates in a timely fashion. There is no easy way to accomplish these "deliveries" today, without substantial changes for the retail investor or added expense for investors who wish to hold a certificate.

The Group of Thirty's recommendation for a change from next-day funds to same-day funds (SDF) for the settlement of securities transactions has no deadline for implementation, but some expect it to be in place in the United States during the 1990s.<sup>78</sup> The adoption of SDF should contribute to risk reduction and would add uniformity and simplicity across all instruments and markets.

However, the U.S. Working Committee, while recommending the eventual adoption of same-day funds, recognizes the need for assessing a number of complex issues associated with its adoption. There are substantive technical issues and the requirement for significant behavioral changes that warrant study before the changeover. Today's automated payment systems, for example, are considered to be not yet sufficiently developed or "user-friendly" to be viable alternatives to the postal system. Similarly, U.S. clearing corporations that process corporate securities transactions do not settle payment obligations in same-day funds. Further work is needed to

<sup>72</sup>"Process" refers to operational functions including trade matching, the number of days to clear a trade, number of days to settle a trade, the use of a depository for holding equities and keeping records of ownership, the use of a recognized numbering system for identifying financial instruments, formats for data transmission, and the method of payment.

<sup>73</sup>"Infrastructure" refers to all of the many nonoperational features necessary to make the clearing and settlement process work in a consistent and stable manner. These include the method of regulation, mechanisms to protect the clearinghouse against the financial failure of a clearing member, a reserve of funds to protect customers of a failing broker or futures commission merchant, bankruptcy laws to adjudicate the disposition of customer assets if a broker fails, credit processes at banks, clearinghouse trade guarantees, capital adequacy guidelines, and bilateral tax treaties among nations.

<sup>74</sup>Bankers Trust, in its survey of clearing and settlement participants worldwide, asked the question: Which critical clearing and settlement problems should the U.S. Congress address, if any...? The three most frequent responses for attention by the Congress were: Support standardization efforts for global trading; Support immobilization of securities; Support increasing the standardization of the clearing and settlement process. It should be pointed out that a significant number of U.S. respondents did not want increased congressional involvement in issues affecting the clearing and settlement industry.

<sup>75</sup>This issue, for the United States, was raised at the Feb. 8, 1990, meeting of the Banking and Clearinghouse Roundtable, where members agreed to hold further discussions. The problem is far more complicated internationally and far from being resolved.

<sup>76</sup>IBM study, op. cit., footnote 71, pp. 20-22.

<sup>77</sup>Group of Thirty, U.S. Working Group Report on *Compressing the Settlement Period*, Nov. 22, 1989.

<sup>78</sup>Memorandum from The DTC to the Group of Thirty, U.S. Working Committee, Jan. 4, 1990.

examine how these systems would have to be altered to accommodate an SDF environment.<sup>79</sup>

A final issue concerns implementing guidelines issued by the Federal Reserve System to mitigate systemic risk that could be caused by a failure of a private payment system (i.e., a clearing agency) participant to settle its obligations.<sup>80</sup> The guidelines are seen as difficult to apply within NSCC and Depository Trust Corp. (DTC) for the clearing of corporate securities and municipal bonds, and therefore will require additional study.<sup>81</sup>

Ongoing efforts by the private sector have been laudable. Yet, some of the issues raised by shortening the time to settlement and same-day funds, among others, will require continued assistance from regulatory bodies and, in some cases, the U.S. Congress, since they are not within the ability of the private sector to resolve.

## IS AN INTERNATIONAL REGULATORY BODY NEEDED?<sup>82</sup>

Global trading has begun to raise many diverse issues; issues that have not received much attention until global trading began to become significant. The list of issues is likely to grow during the decade of the 1990s and change significantly over time. In the past, some of the issues have been addressed, at least in part, by different organizations, often on an ad hoc basis and typically not for all financial instruments or markets. A key question is whether there is a need for a single organizational focus to address international issues on a continuing basis.

Among the many issues currently in need of international attention, are:

- legal issues in cross-border trading,
- information sharing across markets and across national borders,
- the minimum level of technology to be used by various participants with regard to clearing and settlement,
- international regulation of markets,
- the critical interface between international markets and banks,
- means of protecting clearinghouses from externally caused major disruptions,
- minimum financial standards for clearinghouses (i.e., capital and guarantees),
- standards for global custodians, and
- surveillance and enforcement.

These types of issues generally are best addressed in international fora so that the world's markets may evolve in a coordinated, harmonized manner. The International Organization of Securities Commissioners, among other organizations, has begun examining these types of issues. Although the private sector is already dealing with many issues, government assistance is likely to be needed, for example, to effect changes in laws, such as those needed for the immobilization of securities certificates.<sup>83</sup> The several private sector studies do not fully address all financial instruments, e.g., derivative products, that must also be addressed to accommodate the linked markets of today, nor do these studies address all of the process and infrastructure areas that must be examined. The private sector alone cannot implement the recommended changes fully since consensus will be required among market participants, regulators, and national governments.

<sup>79</sup>Ibid.

<sup>80</sup>Federal Reserve System, Docket No. R-0665, *Policy Statement on Private Delivery-Against-Payment Systems*, RIN 7100-AA76, June 16, 1989.

<sup>81</sup>Group of Thirty, *U.S. Working Committee Report on Same Day Funds Convention*, February 1990.

<sup>82</sup>For a fuller discussion, see OTA'S background paper, *Op. cit.*, footnote 1, ch. 5.

<sup>83</sup>See, for example, Group of Thirty, "U.S. Working Group Report on Compressing the Settlement Period," Nov. 22, 1989, pp. 6-10.