

International Clearing and Settlement: What Happens After the Trade

“Clearing and settlement” is the processing of transactions on stock, futures, and options markets.¹ 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. It also sometimes includes the netting of trades, or the offsetting of buy orders and sell orders. “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 certificate 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).² The clearing and settlement mechanisms and institutions in the United States, the United Kingdom, and Japan are described in the appendix. The differences in countries’ clearing and settlement are important because clearing and settlement systems used for domestic trading are now being called onto accommodate international participants. The integrity and efficiency of a nation’s clearing and settlement systems are important to both its internal financial and economic stability and its ability to compete with other nations.

Many markets have ‘clearinghouses’ that handle both the clearing process and some of the settlement process. This is the most common system in the United States for exchange-traded financial products. Many markets, including the U.S. markets, have “depositories,” that hold stocks and bonds for safekeeping on behalf of their owners.

Where clearinghouses do not exist (e.g., in some European markets), depositories may take on functions of clearinghouses. Depositories may transfer ownership of stocks and bonds by “book entry” (a computer entry in the depository’s record books) instead of physical delivery of certificates to the buyer,³ which saves time and money. There are also markets in which exchanges perform some of the clearing and settlement functions (e.g., London’s International Stock Exchange), and markets in which neither clearinghouses nor depositories exist (e.g., until very recently, foreign exchange, or “forex,” markets).

THE GOALS OF CLEARING AND SETTLEMENT

Differences in the clearing and settlement process among countries are often linked to historical, economic, and cultural factors in their laws and customs. These differences can expose international investors to extra risk in some instances. Perceptions of the purposes of the clearing and settlement process vary widely among countries. In the United States and Canada, where public policy supports broad public access to the markets, the reduction of risk, through the clearinghouse as an intermediary, is a major goal of clearing and settlement. These policies are reflected in a hierarchy of protections for the clearinghouse, including minimum capital requirements for clearinghouse members.

In many other counties, risk reduction is imposed before trading takes place, by controls on who is allowed to participate, or by the participants ‘knowing their trading partners,’ and, in equities, by reducing the time allowed to settle a transition. In these markets, clearinghouse guarantee funds are

¹In 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 scores of institutions and individuals around the world contributed expert papers and/or served 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.

²In the United States, equities markets clearinghouses reduce risks by netting payments, among their other precautions to reduce clearinghouse risk. These precautions are disparate among nations. Futures markets worldwide are becoming more similar in terms of guarantees for trades.

³Derivative instruments such as futures and options also change ownership or contractual rights via book entry.

generally small or nonexistent,⁴ and settlement is seen merely as a delivery function, rather than as a mechanism for risk reduction.

These different views of the purpose of clearing and settlement have become significant as more investors begin trading in markets other than their domestic markets. U.S. investors, accustomed to domestic markets where safeguards are in place, may assume that the clearing and settlement of their trades in a foreign market has risks comparable to those in the United States, where there are guarantees provided by clearing and settlement organizations.

The chief aims of clearing and settlement in the United States and some other countries are efficiency and safety. The faster and more accurately a trade can be processed, the sooner the same capital can be reinvested, 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 on a risk-return basis, and that also have efficient and reliable clearing and settlement systems.

The soundness of clearing and settlement systems in one nation can also impact other nations. The failure of a clearing member 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 with each other, 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 without national governments taking a prominent and concerted role.

HOW CLEARING AND SETTLEMENT WORKS

Many kinds of organizations are involved in clearing and settlement. Their functions vary from market to market, and not all of these organizations exist in every country. For instance, clearinghouses

play a key role in the United States and some Asian markets; but in many European markets, depositories are more important.

A key role of a clearinghouse is to assist in the comparison of trades and sometimes, as in the United States, also to remove counterparty risk from the settlement process. Clearinghouses can 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 the payment will be received.⁵

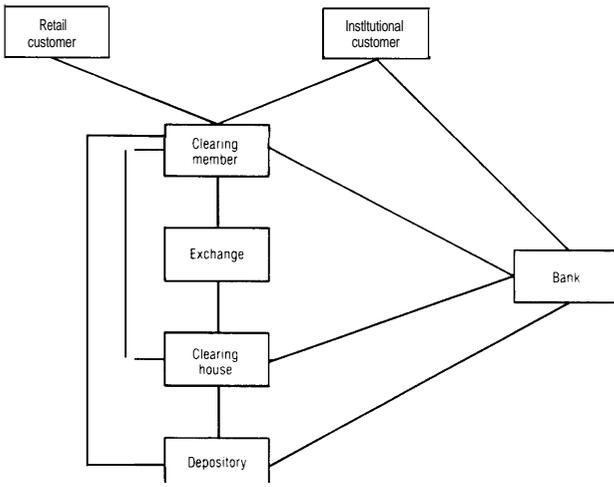
In the United States, the clearinghouse has a number of working relationships, or interfaces, with other institutions (figure 5-1). A trade in the United States (as well as in Japan, Canada, and some other countries) cannot settle through the central systems until it has been matched, i.e., buyers' and 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.⁶ 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. A clearinghouse controls the risks of the clearing and settlement process through its relationships with its clearing members. For example, it may have minimum capital requirements for clearing members, use margins or mark-to-market procedures, and require that its clearing members place collateral in a guarantee fund as protection against default by other clearing members. In the event of the failure of a clearing member, the clearinghouse may also have the ability to assess all other clearing members. It 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,

⁴Bankers Trust study, op. cit., footnote 1, p. 142.

⁵Forty-one percent of the respondents to a question in an international survey conducted as part of the Bankers Trust study stated that the risk that a counterparty to a trade may default, i.e., not pay for or deliver securities, is one of the three most significant risks in settlement domestically. Bankers Trust study, op. cit., footnote 1, vol. 1, p. 239. Despite such fears, such defaults seldom occur.

⁶The clearing entity could alternatively receive information about a trade directly from two market participants.

Figure 5-1-interfaces Among Clearing Participants

SOURCE: Office of Technology Assessment, 1990.

and the way payment and delivery or transfer of ownership will be accomplished).

A third interface is with clearing and credit banks. The clearinghouse and the banks work together in the payment and collection process, since clearinghouses today do not have direct access to the payment system, e.g., FedWire in the United States. 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 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, markets, depositories, and banks, these organizations also have relationships with 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 in 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.⁷

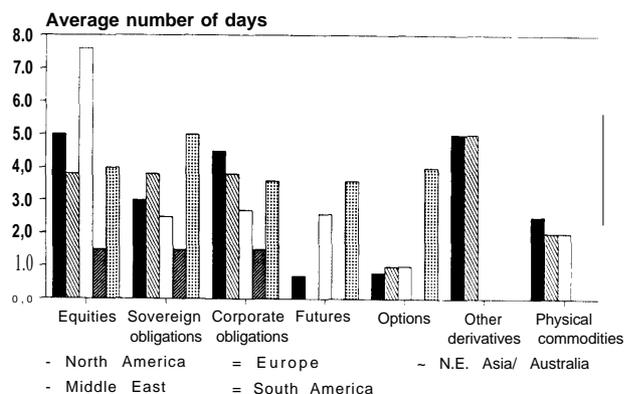
RISKS FROM DIFFERENCES IN CLEARING AND SETTLEMENT MECHANISMS

These differences—the use of guarantee funds, the time allowed to settle a trade, etc.—in countries' clearing and settlement systems are a major constraint on global trading and may impose risks on traders and investors. Defaults in a national clearing and settlement process can propagate through other national systems, since multinational financial institutions may be active in several national markets. Collapse of a major settlement system could endanger financial systems in both its own and other countries.

Even in day-to-day operations, differences in clearing and settlement systems and in their performances constrain some kinds of trading. For example, in Japan, settlement in equities and bonds is normally on the third day after a trade (T+3) and in the United States it is normally on the fifth day (T+5). An investor trading General Motors (GM) stock on both the New York Stock Exchange (NYSE) and the Tokyo Stock Exchange (TSE) would have trouble perfectly arbitraging his holdings. If the investor were to buy GM shares on the NYSE and simultaneously sell them on the TSE, because the U.S. settlement period is 2 days longer, the GM shares would be delayed by 2 business days for the Japanese settlement. If the investor were to buy GM stock on the TSE and sell GM stock that same day on the NYSE, the shares could be available for the NYSE settlement because that is 2 days later than Tokyo's. The Japan Securities Clearing Corp. (JSCC)—through its link with International Securities Clearing Corp. (ISCC) in the United States—holds the U.S. shares at The Depository Trust Co. (DTC); therefore instead of physical movement of certificates there simply would be a book entry delivery at DTC. The average number of days for settlement of various financial instruments in different countries differs widely (figure 5-2). The number

⁷Four 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.

Figure 5-2-Settlement Date: T+?



SOURCE: Bankers Trust Co., "Study of International Clearing and Settlement," OTA contractor report, October 1989,

of days for settlement varies widely among countries in each geographical region. As a result, harmonized clearing and settlement is needed.

Trading in European markets, unlike in the United States, mostly does not rely only on stock exchanges.⁸ In Japan, there is as yet no central depository, but there is a clearing and custody system at TSE. Many European countries have depositories, but their functions vary from country to country, and are often different from U.S. depositories.

There are three principal models for clearing and settlement in the world's major stock markets. The first model has no centralized depository or independent clearinghouse beyond the stock exchange. The exchanges usually perform as many of the clearing and settlement functions as are feasible. These include trade matching, confirmation, and some type of settlement facility—usually a central location where market participants can deliver and receive securities and payments. The equities market in the United Kingdom is an example.

The second model of clearing and settlement is one in which there is a central depository structure,

with trade matching and confirmation services provided by the exchanges. Once trades have been matched and confirmed, the trade data are sent to the depository for settlement. There are variations on this model with differing degrees of settlement services provided by the depository. The depository may offer book-entry transfer of ownership of immobilized securities, with limited provisions for varying payment methods. Or the depository may provide book-entry transfer of dematerialized securities and the ability, through direct links to local payment systems, to simultaneously and irrevocably transfer funds for each settlement. An example is West Germany and its Deutscher Kassenverein (KV) depository system.⁹

The third model has not only a stock market and a central depository, but also a clearinghouse that stands between the stock market and depository to reduce risk. The stock market, along with the clearinghouse, provides trade matching and confirmation services. A trade is confirmed by the market participants and is then passed to the clearinghouse, which substitutes itself as the counterpart to each trade. This gives a degree of financial assurance to the markets since the clearinghouse will honor the obligations of a clearing member if necessary. The clearinghouse then passes the trade information to the depository for delivery versus payment¹⁰ on the settlement date. An example is the United States equities market.

In most European equities markets,¹¹ there are no central clearing organizations that assume the role of counterpart to every trade or provide other kinds of mechanisms to ensure the financial integrity of all market participants in the clearing and settlement phase. Where there is no third-party guarantee mechanism for trade settlement, market participants are forced to choose their counterparties based on their own credit assessment.

But when a market ceases to be a closed structure with only a select group of participants who know

⁸In most cases, the majority of trades are among banks, and occur off the exchange. In these off-exchange trades, bankers or brokers interface with the depository, bypassing the exchange, except possibly for reporting trades.

⁹Hans-Joachim Hoessrich and Heinz-Klaus Ruetzel, "Clearance and Settlement in Germany," expert paper contributed to OTA contractor report by Bankers Trust Co., op. cit., footnote 1.

¹⁰"Delivery versus payment" (DVP) and "receive versus payment" are terms which mean that 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.

¹¹With the exception of the Paris Bourse.

each other, the market must implement some standardized processes which can offer a guarantee of financial integrity. When a national market encourages international participation, it must try to ensure the continuing financial integrity of the market. The current focus in Europe on the standardization or harmonization of clearing, settlement, and depository systems is in preparation for the common market in 1992. (See ch. 4.) The movement toward increased coordination of clearing and settlement systems is, however, worldwide, stemming from recognition of the increasing internationalization of securities trading.

EFFORTS TO REDUCE THE DIFFERENCES

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 businesspersons, bankers, and representatives of financial institutions from 30 developed nations. 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 set target timetables of 1990 for some objectives and 1992 for others. In a report released in 1989,¹² 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 makeup 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."¹³
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.¹⁴
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 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.¹⁵ (No date has been set for achieving this objective.)
7. A "rolling settlement" system¹⁶ 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

¹²Group of Thirty, *Clearance and Settlement Systems in the World's Securities Markets* (New York & London: March 1989), p. 1.

¹³In 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.

¹⁴The principal function of a central securities depository is to immobilize and materialize 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 book of the depository.

¹⁵Some markets use "same day" funds (the payment is final on the same day), 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.

¹⁶In 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.

settlement of securities transactions.¹⁷ 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 (ISO Standards 7775 and 6166).¹⁸

Table 5-1 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 1992.¹⁹ 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 3 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.²⁰

- Changes also have been made in the margining of foreign securities in U.S. accounts with foreign currency-denominated cash and securities.²¹

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 depository firms, banks, regulators, and others, to begin discussing the recommendations. The U.S. Advisory, Steering, and Working Committees reconvened a meeting on March 1, 1990 to discuss progress on the recommendations on same-day funds and shortening the time to settlement. These and other issues are being accommodated by the Federal Reserve Board (FRB). David Ruder, then SEC Chairman, noted at the 1989 meeting that the Group's recommendations are consistent with published policy objectives of the Securities and Exchange Commission.²² He also listed other areas that require attention, such as capital adequacy standards for market participants, information sharing among clearing entities, and the interaction of derivative

¹⁷Securities lending and borrowing has become an effective tool used by market participants to satisfy their obligation 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.

¹⁸The ISO is a worldwide standards-making body. ISO standard 7775 applies to Securities Message Types; standard 6166 applies to International Securities Identification Number. 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.

¹⁹The 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.

²⁰See 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 m@ and it does not apply to reasons such as a customer being unable or unwilling to make payment or deliver securities.

²¹Ibid.

²²Policy 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.

Table 5-1--Group of Thirty: Current Status of International Settlement Recommendations--Equities

Recommendation No.	1	2	3	4	5	6	7	8	9
Country	Institutional Comparison on T+1	Central Comparison System	Securities Depository	Securities Netting	DVP	Rolling Settlement on T+5	Same-Day Funds	ISO/SIM	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),

markets.²³ Officials of U.S. regulatory agencies are supportive of the U.S. Committee's efforts.²⁴

The Group of Thirty is not alone in exploring many of these issues; other international groups have attempted to develop consensus on some of the issues in clearing, settlement, and payment systems. These organizations include the Federation Internationale des Bourses de Valeurs (FIBV),²⁵ the Bank for International Settlement (BIS),²⁶ the International Society of Securities Administrators (ISSA),²⁷ the European Community (EC),²⁸ and the International Organization of Securities Commissioners

(IOSCO).²⁹ Their activities reflect a growing international concern for making the world's markets more stable and compatible, and for reducing avoidable risk.

The FIBV Task Force includes representatives from the Tokyo Stock Exchange, the International Stock Exchange, the VP (Denmark's depository system), the Amsterdam Stock Exchange, the ISCC in the United States, Euroclear, CEDEL, the Group of Thirty, SICOVAM, ISSA, and IOSCO. The FIBV Task Force met in December 1989 to discuss how countries might proceed, and again in March 1990 to

²³David S. Ruder, "Remarks on the Group of Thirty Report on International Clearance and Settlement," May 15, 1989.

²⁴Comments by G. Corrigan, President of the Federal Reserve Bank of New York and Commissioner Mary Shapiro, SEC, at the March 1990 meeting of the U.S. Committee.

²⁵The FIBV study "Improving International Settlement," June 1989, focused on the settlement of cross-national border trading. This report endorses the recommendations of the EEC and Group of Thirty reports and also makes additional recommendations.

²⁶The BIS's Group of Experts on payment Systems, Committee on Interbank Netting Systems is working on a study of multilateral netting schemes.

²⁷For information, see ISSA Handbook on Clearing and Settlement in the world's markets, updated regularly. An edition covering 28 countries and the Euromarkets was published in May 1990.

²⁸The EEC's "Study on Improvements in the settlement of Cross-Border Securities Transactions in the European Community," focused on the need for centralized depositories.

²⁹Gerrit de Marez Oyens, "Clearing and Settlement," report to the 14th Annual Conference of IOSCO, Venice, September 1989; the adoption of a resolution in 1986 that promotes investor protection through surveillance and mutual enforcement assistance; and the establishment of a technical committee to review major problems in international securities transactions and working groups to address specific topics, such as offerings of securities on an international basis and multiple listings, the problems with existing memoranda of understanding among markets, and international clearing and settlement. IOSCO has been studying issues related to capital adequacy for non-bank securities firms and is exploring ideas for risk-based capital adequacy standards.

continue its efforts. The FIBV Task Force³⁰ has agreed to the following steps:

- promote the development of links between national markets;
- assist one another by exchanging plans and procedures for implementation (a Practice which has already begun);
- standardize communications message formats, terminology, and legal agreements;³¹ and
- assist each other in understanding the ramifications of their individual decisions on international trading.³²

The Commission of the EC commissioned a report³³ with recommendations that to date have not gained wide support among EC countries. It is unlikely that the EC will adopt the report's recommendations soon, but will await the results of other international efforts. The report's recommendations focused on the need for central depositories in Europe, not on clearinghouses; therefore, many of the recommendations do not apply to the United States.

ISSA, whose officers are directors of six major international banks, produces handbooks on clearing and settlement in world markets to promote progress in securities administration. Key issues in clearing and settlement were identified in an ISSA conference in 1989.³⁴

Among other efforts to improve elements of the clearing and settlement process are:

- The Committee on Banking Regulations and Supervisory Practices of the Bank for Interna-

tional Settlements has designated a working group on traded securities, which is currently exploring issues including the risk-based capital standard and explicit treatment of position risk for banks.

- The SEC and U.K. regulators have entered into a bilateral agreement under which the U.K. regulators will waive their capital adequacy requirements with respect to particular U.S. broker/dealers that have branches in the United Kingdom, if the SEC provides certain information to their U.K. counterparts.³⁵ The SEC is exploring bilateral agreements on the subject of sharing information for enforcement purposes and, through IOSCO, is looking into the feasibility of multilateral agreements toward this end.

Although several of these groups have some members in common, each of the efforts is proceeding independently,³⁶ and there are several points of agreement among the most prominent groups (table 5-2). These proposals and efforts are a starting point for improvement, but some of these will require action by the national governments.³⁷

The reforms suggested by 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:³⁸

- Trade Processing
 - The NYSE in 1988, began developing an on-line trade reconciliation system which

³⁰Information on the FIBV Task Force is based on a December 1989, interview with Mary Ann Callahan, ISCC, who attended the last Task Force meeting.

³¹As in many other areas where international harmonization or standardization is in its infancy, there are surprisingly large numbers of specialized terms used in different ways for comparable functions by various countries, a situation which hinders cross-national border trading.

³²As an example of the latter, the Hong Kong Stock Exchange has already decided to implement a 2-day settlement period. Such a short period will pose problems for settlement of cross-national border trades.

³³Jorg-Roland Kessler, 'Study on Improvements in the Settlement of Cross-Border Securities Transactions in the European Economic Community,' 1989.

³⁴ISSA Symposium, 'Global Securities Investments: Processing Issues and Solutions,' Switzerland, May 1989.

³⁵Under this agreement, the SEC will notify U.K. regulators if it becomes aware that a particular broker-dealer's financial or operational condition is impaired, and U.K. regulators will provide reciprocal services.

³⁶The fact that some of the same people, including regulators, participate in a number of these groups provides a measure of coordination internationally.

³⁷See, for example, Group of Thirty, "U.S. Working Group Report on Compressing the Settlement Period," Nov. 22, 1989; and Bankers Trust Co., op. cit., footnote 1, p. 206.

³⁸For an evaluation of progress on implementing the recommendations of the president's Working Group on Financial Markets relating to clearing and settlement, see U.S. Congress, General Accounting Office, *Clearance and Settlement Reform: The Stock, Options, and Futures Markets Are Still at Risk*, GAO/GGD-90-33 (Gaithersburg, MD: April 1990).

Table 5-2—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 ^a	Yes	Yes	Yes	Yes
Evaluate securities netting	Yes ^b	Yes ^c	Yes	Yes
Delivery versus payment	Yes	Yes	Yes	Yes
Rolling settlement	Yes	Yes	Yes	Yes
Same-day funds	Yes ^d	Yes ^e	Yes	Yes
Use of ISO standards for message formatting	Yes	Yes	Yes	Yes
Lending for settlement	Yes ^f	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

^aDepositories for securities are already widely used in the United States. Included as part of the risk reduction/resolution recommendation in the report.

^bIncluded as part of the risk reduction/resolution recommendation in this report.

^cIncluded as a subset of the delivery versus payment recommendation of this report.

^dIncluded as part of the currency accounting recommendation of this report.

^eIncluded as part of the risk reduction/resolution recommendation in this report.

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

has evolved into its current Overnight Comparison System.

- The National Securities Clearing Corp. (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 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 (SCG), 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 fired at-risk exposure information about joint members.³⁹ An earlier, continuing effort in the futures industry (the BOTCC's system) to share pay-collect information is being expanded to include options issued by the Options Clearing Corp. (OCC). (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. Due to a recent change, now only 70 percent of an NSCC clearing member's collateral may be in the form of letters of credit. In addition, the NSCC's Board of Directors has approved, and NSCC has obtained, a bank line of credit of \$200 million.⁴⁰
- 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 1994.⁴¹
- 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.

³⁹As of May 1990, the SCG was proceeding with its own system. OTA staff discussion with Robert Woldow, Executive Vice President and General Counsel, NSCC, May 9, 1990.

⁴⁰Data from Robert Woldow, Executive Vice President and General Counsel, NSCC, March 1990.

⁴¹SEC Release No. 34-27249, "Proposed Rulemaking on Broker-Dealer Net Capital Requirements," S28-89, Sept. 15, 1989.

UNRESOLVED PROBLEMS

In futures markets differences exist both domestically and internationally. There is some commonality, however, for financial safeguards in U.S. domestic futures markets. 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; posting deposits by clearing members, which are callable 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.⁴²

Exogenous forces could prove overwhelming, e.g., either a general crisis in the financial markets, or a failure of one or more large banks or broker/dealers for reasons unrelated to the financial markets themselves. In such a case the ability of a clearinghouse to assess its members, after it exhausted all of its margin and guarantee funds, would be ineffective.⁴³

Some key questions for market regulators are:

- . whether the financial standards at individual markets and clearinghouses within their juris-

dictions are satisfactory;

- what improvements are needed, in cooperation with other regulators, to strengthen the contribution of their markets toward improving the overall financial integrity of the national financial system; and
- what improvements are needed, in cooperation with authorities in other countries, to strengthen the financial integrity of futures, options, and equities markets internationally, and to contribute to an overall strengthening of the international financial system.

There is also the question of how to supervise groups that invest in a variety of financial instruments and markets internationally. Current systems are not able to achieve this, although they make some efforts to provide a picture of the overall financial risk of such participants.

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 changes in margin-setting systems.^{44,45} Nevertheless, Federal Reserve Board Chairman Alan Greenspan noted his 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.⁴⁶

Shortening the interval between trade execution and the collection of margins could be a benefit, by reducing the exposure of clearing members before the clearinghouse’s payment guarantee is effected, and the exposure of the clearinghouse in the interval between the provision of the guarantee and collection of margin payment.

⁴²Michael 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.

⁴³Roger Rutz, Chief Executive Officer, BOTCC, believes that in a general financial market crisis scenario, there could be a complete economic collapse, or the FRB, as lender of last resort and provider of liquidity to the financial system, will act to stabilize market conditions. In the second scenario, the FRB would probably rescue a large bank and the government might have no choice but to do the same for a large non-bank broker-dealer. Expert paper contributed to OTA contractor study by Bankers Trust Co, op. cit., footnote 1.

Although the recent experience in the liquidation of Drexel, Burnham, Lambert casts doubt on the concept of a firm being too large for the government to allow to fail, and provides credibility to some alternative criteria for a government rescue action, such as the broader impact of such a failure.

⁴⁴Interim 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, UnderSecretary 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 41.

⁴⁶Oral 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.

There are advantages for firms that are members of several exchanges in having their positions at each exchange confirmed, registered, and guaranteed at the same time. Simultaneous transfers of funds could be made by their settlement banks in payment of margins. The advantages would be far greater (but achievement more difficult), if settlements were synchronized between financial futures and options markets. The synchronization of settlement timetables across time zones is theoretically possible once settlement periods of less than a full day are achieved.

Is a member-owned clearinghouse that is backed by the assets of its owners safer than an independent clearinghouse, such as London's International Commodities Clearing House, that is owned and backed by strongly financed shareholders, i.e., banks? This depends on whether the guarantee is more robust if backed by a special reserve fund, the assets of its member-owners, external credit lines, guarantees or insurance arrangements, or by a combination of these.⁴⁷ This also depends on the liquidity of the assets involved.

Large risk exposures to single customers have been a source of financial problems in futures markets in some countries (but not in the United States). In the United States, the Commodity Futures Trading Commission (CFTC) has had a large-trader reporting process since before the October 1987 market break. Similar information-sharing procedures are needed to monitor exposure in international futures markets.

POLICY ISSUES

Six areas of major concerns need to be addressed:

- risks associated with default;
- . risks associated with the payment process;
- . information sharing;

- . technology;
- . standardization and harmonization;
- shortening the time to settlement and providing same-day funds.

Risks Associated With Default

Investors need to be made aware of the differences in the amount of protection provided by various foreign markets. For example, there are no international standards for guarantees (by clearing organizations, banks, and others)--either for the protection of investors or to prevent the collapse of financial institutions.

In the United States, the Securities Investor Protection Corp. (SIPC)⁴⁸ provides a level of protection to market users in equities, bonds, and equity-related options markets. The protections afforded by exchanges and clearinghouses in futures markets to market users vary and are extended mainly to clearing members of the exchange's clearinghouse.⁴⁹ Insurance can never completely cover all losses. Some failures in securities markets are resolved in the United States 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).⁵⁰ The UCC is being reexamined to reflect the realities of today's marketplace, especially where 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.⁵¹ In nonregulated markets, such as foreign exchange, there is little investor protection.

The SIPC in the United States, the Canadian National Contingency Fund, or the United Kingdom's Securities Investment Board contingency fund are possible models for international markets

⁴⁷In the United States, after the 1987 crash the size of guarantee funds was increased and greater cash deposits were required in place of bank letters of credit, and the size of letters of credit outstanding with futures clearinghouses from any single bank was limited.

⁴⁸SIPC 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.

⁴⁹It 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.

⁵⁰The 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 that is seeking improvements to this area.

⁵¹In 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.

which do not now have any protection for investors. Canada uses private insurance, while the United States and the United Kingdom use government guarantees. These are topics that warrant the attention of governments and the private sector.

Risks Associated With the Payment Process

There have been recent innovations in the way payments are made for transactions. Increased volume of trading has heightened the 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 need to be 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 earlier than necessary.⁵² This could exacerbate a downward market spiral. Knowledge about 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,⁵³ and others are on later timetables.⁵⁴ 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.⁵⁵ The private sector and the regulators must harmonize disparate systems, at a minimum 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

In most kinds of financial transactions, a lender (e.g., a bank) will have access to information about the past creditworthiness and the current financial risks of a potential borrower. However, there is no central source of risk information for financial markets participants in spite of the large amounts of money often involved. Some organizations in the clearing and settlement industry have arrangements among themselves for sharing risk information about market participants either formally or informally. Such arrangements are limited in scope, and 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.^{56 57}

⁵²The 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.

⁵³Immediate 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.

⁵⁴See Bankers Trust report, op. cit., footnote 1, vol. 1, p.149.

⁵⁵Respondents 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."

⁵⁶About 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. Bankers Trust study, op. cit., footnote 1, vol. 1, p. 235.

⁵⁷While 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 37, p. 4.

There is a general consensus that risk information should be shared,⁵⁸ but there is fear that risk information might give an advantage to potential competitors. 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.

Bilateral links for sharing information have been developing among clearinghouses, depositories, and regulators in various countries; these have set the stage for more global sharing of risk information. However, there are often legal restrictions on the flow of information across national borders.⁵⁹ It is an issue that requires government and private sector attention if it is to be resolved satisfactorily.

*Inadequate Technology*⁶⁰

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. However, the clearing and settlement industry worldwide (including many brokerage firms and banks) are operating at an inadequate level of technology to meet the increasing demands of the markets.

Cultural, legal, regulatory and economic factors sometimes work as barriers to increasing the level of automation. For example, some countries prohibit

the transfer of equity ownership through electronic book entries. Others restrict the importation of automation and communication equipment and require domestic sources. These are areas where it will be necessary for governments as well as the private sector to make decisions about appropriate actions.

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 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, in most countries, 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 process⁶¹ and the infrastructure⁶² of clearing and settlement would make it easier to link the world's clearinghouses and depositories. There is strong motivation by regulators, the Self-Regulatory Organizations (SROs), and the private sector, for standardization to meet the demands resulting from globalization of world markets. 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) and a few other countries have standardized their domestic systems both in the process and the infrastructure, although there are notable differences among them.

Operating hours and daily schedules for banks and financial markets are not uniform, either domestically nor internationally. Banks, including the cen-

⁵⁸The 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. Bankers Trust study, *op. cit.*, footnote 1, vol. 1, p. 231.

⁵⁹As examples, Belgium and Switzerland have strict privacy laws which restrict the sharing of a client's information, such as trade details, with third parties. IBM, "Study of Clearance and Settlement for the U.S. Congress—OTA," Aug. 1, 1989, pp. 7, 39. This report is incorporated in the OTA contractor report, Bankers Trust Co., *op. cit.*, footnote 1.

⁶⁰This section is based on "IBM Study of Clearance and Settlement for the U.S. Congress—01%" Aug. 1, 1989, *Ibid.* The IBM study is based on opinions of participating experts from the world's major exchanges and clearing organizations.

⁶¹"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.

⁶²"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.

tral bank, maybe closed even if financial markets are open.⁶³ This disparity becomes increasingly important 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.

Many investors in the world's equity markets deal with global custodians for clearing and settlement.⁶⁴ Therefore, no matter how significant the improvements in the clearing and settlement process, the gains in efficiency can be diluted unless parallel improvements are made by global custodians.⁶⁵ Currently, there are no standards that define a global custodian,⁶⁶ yet these are important to achieving smooth-working global markets. This needs to be addressed at the international level by both private sector and government regulators.

Markets around the world compete to be agents for capital transfer, and have made innovations to improve their competitive positions. Before and after the October 1987 crash, the private and public sector have taken steps to reduce systemic market risks. These risk-reduction efforts include increased co-operation among the world's regulatory bodies. But efforts to improve clearing and settlement systems-domestically and particularly in some foreign countries-likely will fall short unless change occurs in: 1) process, and 2) the infrastructure. Many gaps in the infrastructure (methods of regulation, taxation, customer protection) exist, but have not yet received adequate attention.

Effective reforms in clearing and settlement will have to be undertaken on an international scale. The private and public sectors in the United States can act as leaders in the evolution of improvements in the domestic clearing and settlement industry, but they face serious constraints in achieving worldwide improvements unless their efforts coincide with those of other countries. Both private sector and government actions are required.

Shortening the Time to Settlement and Providing Same-Day Funds

The need for standardization, or harmonization, of clearing and settlement is manifest by the various international standards-setting efforts already underway.⁶⁷ One example of the need for standardization is shown by the differences among countries in the number of days to settle a trade for different financial instruments. This is a case in which the private sector likely will require the support of national governments to establish minimum standards for harmonizing international clearing and settlement. The United States, for example, 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.⁶⁸

The elimination of physical delivery of certificates is the key to automating the clearance and settlement systems. This has been achieved legislatively in France, where certificates are dematerialized (i.e., paper certificates are eliminated and computer-based records are substituted), and in Germany, Switzerland, Euroclear, and CEDEL (the international clearing and settlement firm) by using nominee custodians to centrally transfer ownership by book-entry. The United Kingdom has established a depository nominee (SEPON) for the book-entry transfer of ownership between market-makers. The system will be extended to other exchange members and some institutional investors,' and the United Kingdom has plans to implement a book-entry transfer approach for all transactions. Japan and Hong Kong have enacted legislation that requires automated book-entry 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 certifi-

⁶³This 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.

⁶⁴A global custodian is a bank that holds securities and other financial instruments in multiple markets on behalf of international investors.

⁶⁵For more on this subject, see Bankers Trust Co., op. cit., footnote 1, vol. 1, p. 174.

⁶⁶The International Society of Securities Administrators may begin to develop standards for global custodians in 1990.

⁶⁷Bankers 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 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.

⁶⁸IBM study, op. cit., footnote 58, pp. 20,22.

cates (which some retail investors insist on) and reliance on the postal system to accomplish this.⁶⁹ 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.⁷⁰ 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 for the United States, 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-tiendly” to be viable alternatives to the postal system.

A second issue is that although most major futures clearing corporations in the United States settle in same-day funds, there are important exceptions, e.g., NSCC and the six regional equities clearing corporations and depositories. Further work is needed to examine how these systems would have to be altered to accommodate an SDF environment.⁷¹

A third 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.⁷² The guidelines are seen as difficult to apply within NSCC and DTC for the clearing of corporate securities and municipal bonds, and therefore will require additional study.⁷³

Ongoing efforts by the U.S. 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?

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.⁷⁴ 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.⁷⁵

Some of the organizations’ efforts aimed at harmonization have been peripheral to their primary missions, or one-time activities. The efforts of U.S. regulatory agencies, that seek incremental improvements through bilateral agreements, although sustained, are slow. Pressures for harmonization are growing, and piecemeal efforts to address these global needs may be inadequate. In other fields of international interaction, such as telecommunica-

⁶⁹Group of Thirty, op. cit., footnote 36.

⁷⁰Memorandum from The DTC to the Group of Thirty, U.S. Working Committee, Jan. 4, 1990.

⁷¹Ibid.

⁷²Federal Reserve System, Docket No. R-(X565, “Policy Statement on Private Delivery-Against-Payment Systems,” RIN 7100-AA76, June 16, 1989.

⁷³Group of Thirty, U.S. Working Committee Report on Same Day Funds Convention, February IWO.

⁷⁴See, Group of Thirty, op. cit., footnote 36, pp. 6-10.

⁷⁵The Group of Thirty has found that building consensus is essential to making progress in harmonizing international standards and procedures both in the United States and in other countries. Yet there are indications that important issues, such as the dematerialization of securities certificates, may be difficult to change in the United States in the near term. Some Americans also fear that the recommended reforms, if adopted internationally, could make other markets more competitive with U.S. markets, weakening our competitive advantage. In spite of such concerns, the Group of Thirty is making considerable progress, as of late 1989, according to Gerard Lynch, Managing Director, Morgan Stanley, who has played a leading role in developing consensus among U.S. participants. Discussions with OTA staff, December 1989.

tions and air and sea transportation, international decisionmaking and standardization, or harmonization, have long been recognized as essential. International consensus and standardization are critical to making global trading practices uniformly acceptable. This suggests to some people a need for an international body to facilitate the process.

Others argue against such action, because other countries may resent the United States trying to change their markets, and fear that this resentment would generate resistance to U.S. proposals. Nations have different objectives for clearing and settlement and contrasting views on the best approaches to accomplishing them; some view the protection of investors as paramount (as a number of countries, including the United States, have historically done), while other nations have as their primary objective greater market share. Some people suggest that the United States might be disadvantaged if it were to focus too narrowly on issues such as safety and soundness while other countries focus on gaining market share.

Perhaps one of the greatest problems in achieving a safer global clearing, settlement, and payment system is parochialism.⁷⁶

The alternative to developing or adapting an international standing body to focus on major issues is continued reliance on informal or bilateral agreements—the present approach. These approaches warrant close examination by the U.S. Congress.

At any rate, since the financial markets are private markets which involve the public interest, the role of the Federal Government will have to be played out in concert with suitable private-sector institutions to achieve public policy goals. Many issues need international attention, including:

- 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.

The ability of the United States to unilaterally develop new standards and procedures for international clearing and settlement is limited. As the need to develop a broad consensus on these issues in international forums increases, U.S. regulators must become more knowledgeable about other countries' regulations, practices, customs, and laws, and more proactive in seeking accommodations. Federal regulators will need a shared, consistent view of the minimum standards for clearing, settlement, and payment systems on an international basis.

This subject is discussed in a forthcoming OTA report, *Electronic Bulls and Bears; Securities Markets and Information Technology*, along with complications associated with U.S. regulatory responsibilities divided among the Securities and Exchange Commission, the Commodity Futures Trading Commission, the Treasury Department, and the Federal Reserve System.

⁷⁶As one observer put it: ". . . that under the guise of safeguarding the system and making it more effective and efficient, the evolution of the regulatory system internationally will continue to be distorted in order to advance narrow nationalistic and protectionist purposes. To the extent that this occurs, less progress will be made in advancing the primary objectives of regulation—safety and soundness, competition, integrity and consistency. In addition, the international system will fall short of its potential to facilitate economic growth and development." @anti...Reuba-DeptChairman of the Bank of Montreal, "Implications of Globalization for Regulation and Safety," a talk at the November 1989, Financial Globalization Conference in Chicago.