

The Disappearing Boundary: Financial Services and Telecommunications Services

Banks operate communications systems; telecommunications firms offer financial services. But the market encroachment is one-sided. Telecommunications companies are increasingly including financial services among information services they intend to offer, and are also creating subsidiaries for leasing, financing, and investing. (Other nonfinancial firms, such as Sears and General Motors, also offer such financial services.) Banks are more limited in the range of activities that they may conduct.

Banks and Resale of Network Capacity

Financial institutions operate corporate communications networks and share with other financial institutions the ownership and management of value-added networks. They may also make it possible for their customers to access their networks, and they may offer enhanced data communications services. To a limited extent, they are thus competing in the telecommunications services market.

Estimates are that the average use of private networks by financial institutions varies between 10 and 30 percent of capacity.¹ This overcapacity came about because in the booming 1980s financial institutions overestimated their future traffic to allow for growth, and also regarded some overcapacity as insurance in case of circuit failures. Their bursty traffic also results in excess capacity, particularly during certain off-periods of the day. This raises the possibility of financial institutions reselling the excess capacity on their private networks.

Already some postal telephone and telegraph administration (PTTs) regard large financial institutions as “carriers in disguise,” when they give customers access to the bank’s computers through

the private network, as they may do in accordance with Consultative Committee for International Telephone and Telegraph (CCITT) regulations. Most such uses involve small amounts of data per transaction (2,000 to 4,000 characters for account balance reports); third-party use is a small part of the total capacity, estimated to be under 25 percent, shared by many customers.

In the United States, for national banks and federally regulated banks, both banking law and communications law govern resale of telecommunications capacity. Under banking regulations, a bank may operate a network only for financial data. Under communications law, resale requires a “214 certificate” issued by the Federal Communications Commission (FCC) (under section 214 of the 1934 Communications Act) that would subject the bank to common carrier regulation.² Banks can make some excess capacity available to other institutions or customers for limited purposes but only if the excess is “genuine, not manufactured excess.” They may not routinely resell capacity.³

New Kinds of Competition

Although U.S. banks are prohibited from operating telecommunications systems except for financial services use, telecommunications companies are offering financial services and becoming competitors to banks. Banks have traditionally served as intermediaries and escrow agents between lenders and borrowers by holding deposits and dispersing loans, or linking buyers and sellers and handling currency transactions for them. Now telecommunications companies are moving into this market. AT&T launched its Universal Card on March 26, 1990; this is a general credit card as well as a calling

¹ Marjorie Greene, “Public Policy and International Telecommunication Technology in Financial Markets—An Overview,” OTA contractor report, February 1992.

² In December 1991, the FCC proposed to permit resale between the United States and any other countries with equivalent opportunities. This incentive, which is still pending, could in theory open up the U.S. international telecommunications market to more competition bringing in foreign competitors.

³ In 1982 Citicorp applied to the FCC for permission to provide a common-carrier service focusing on banking, financial, and economic data. The FCC refused on the grounds that under the Bank Holding Company Act, the approval of the Federal Reserve Bank would be required for Citicorp to engage in common-carrier communications. (Citibank does not resell capacity, and says that it now has no interest in being a common carrier.)

card.⁴ Ameritech followed suit with a Complete Card, also a combined credit card-calling card, in October 1991.⁵ There are also joint business arrangements in which telecommunications companies and financial institutions are allied for more limited purposes.⁶

Telecommunications companies can perform cash management functions, and are also developing transaction or trading systems for securities companies. Prodigy, a U.S. videotext service, and MINITEL, the videotext service provided by France Telecom in France (and now in other countries, including the United States) carry banking services. Other telecom companies are expected to offer such services through 800 and 900 numbers.

AT&T Capital Corporation, originally set up to finance the sale or leasing of AT&T products, now also leases transportation equipment and data processing equipment, provides project financing for energy production companies, makes loans to small businesses, and provides financing for equipment firms in Canada and Europe.⁷ The NYNEX Capital Funding Co. provides funding for NYNEX subsidiaries (other than the New England Telephone Co. and the New York Telephone Co.) through issuance of debt securities in the United States, Europe, and other international markets.⁸

American Bankers Association officials acknowledge that AT&T and the Regional Bell Operating Company (RBOCs) are becoming "near banks" because they can do nearly everything a bank does⁹ except debit/credit deposit accounts. With electronic data interchange (discussed below), even this distinction may become blurred. As one bank official



Photo credit: Citibank

A Citibank advertisement for its home banking telephone.

said, "AT&T is becoming a payment system for inter-corporate and consumer-to-corporation payments. 10 It seems possible that in the future, the banking system will no longer provide a unique infrastructure for the payments mechanism.

The telecommunications companies' large customer base and well-developed billing systems make their competition in financial services particularly threatening to the banking industry. For example, the new credit/calling cards could yield valuable

⁴ The Universal Card is issued by the Universal Bank in partnership with an AT&T subsidiary, AT&T Universal Card Services Corporation, which handles the validation billing, and collection for the card. AT&T's subsidiary markets the card, which has either a Visa or a Mastercard number and an AT&T Calling Card number. (AT&T's name and logo are on the credit card billing statements, and telephone calls charged to the card appear on these statements and not on bills from the local telephone exchange.) The Universal Bank was setup by Synovus Financial Corporation at the request of AT&T and is not a general service bank. AT&T is or was until 1991 the bank's sole depositor and sole lender. Information provided by AT&T; see also Complainants Brief, *In the matter of BankAmerica Corporation, The Chase Manhattan Corporation, Citicorp, and MBNA America Bank NA v. AT&T, AT&T Universal Card Services Corporation, and Universal Bank*, Files Nos. E-90-211, E-90-212, and E-90-213, Common Carrier Bureau, FCC. The brief cites Universal Bank's Application for a bank charter and for Federal Deposit Insurance (June 29, 1990).

⁵ The Complete Card is a MasterCard offered in a five-state region by Ameritech, one of the RBOCs, in conjunction with Household International. *Ameritech Annual Report*, 1991.

⁶ For example, in May 1992, British Telecom and Visa International announced that VISA cards could soon be used to pay for telephone calls to the United Kingdom from overseas, and visitors to the United Kingdom with Visa cards will not need a U.K. telephone account, but can bill calls to their Visa card in their home currency. *Telecom Highlights International*, May 20, 1992, p. 5.

⁷ See AT&T *Annual Report*, 1991.

⁸ NYNEX, *Annual Report*, 1991.

⁹ A commercial bank is an institution that both accepts deposits and makes loans. ("Nonbank banks" either accept deposits, as do money market accounts, or make loans, as do credit companies.)

¹⁰ Michael Nugent, of Citicorp, in statements made at OTA's May 10, 1991 workshop.

Box 4-A—Reuters, Ltd: A Global Information Services Vendor

Paul Julius Reuter began delivering financial market data across Europe in 1850, using carrier pigeons to fly stock market quotations between Brussels and Aachen, where telegraph lines had not yet been strung. The next year Reuters used the first underwater telegraph cable, connecting Dover and Calais, to transmit market data and financial news from London to the continent. Today, Reuters Holdings PLC is one of five companies that dominate the market for money, securities, and futures market data.¹

Until the late 1960s, 70 percent of Reuters business was general news (press communications). Now 60 percent is information services related to money markets.² The turning point was Reuter's 1960s venture with Ultronics to produce and use "Stockmaster" for real-time dissemination of market data to brokers' desks. (Ultronics was later bought by Sylvania and still later by ADP.) The Western Union Cable from Miami to Caracas, on which Reuters leases capacity, was another important step. Then Reuters moved into transactions services with the Monitor service for dealers. Now as much as 40 percent of all foreign exchange transactions may go through Reuters. Telerate is the chief competitor, and Quotron is just beginning a dealer/transactions service. In the future, Reuters' officials say, their chief competitors may be Japanese. (KDD has built computer service facilities to serve Japanese traders and companies in New York and the United Kingdom, and British Telecom owns a 2 percent share of this venture.)

Reuters is headquartered in London, but its long-term strategy is to have equal nodes in London, New York and Tokyo. Reuters was owned by the press associations of Great Britain, Australia, and New Zealand until it went public in 1984. Forty percent of the general public shares are U.S.-owned. A panel of Trustees has the power to prevent a controlling interest in Reuters being sold to a "non-appropriate" owner—i.e., one that might threaten the fair and equal dissemination of news and data, especially financial data.

Deregulation or liberalization in Europe and Asia has given Reuters more freedom to use leased lines for new services. Before deregulation, it usually took 3 years to get permission to offer dealing services. On June 25, 1992, Reuters began operating a global trading system for financial futures contracts, in cooperation with the Chicago Merchantile Exchange and the Chicago Board of Trade. With this GLOBEX system, the futures exchanges will have the liability for completing transactions; in its own foreign exchange dealing service, Reuters bears that liability. In the future, Reuters' officials say, Reuters may find a larger role in telecommunications services within multinational corporations.

SOURCE: **OTA interview with Peter Smith**, International Communications Manager for Reuters Ltd., in **London**, Apr. 18, 1991; OTA interviews with Michael Reilly, Senior Vice President for External Relations, Reuters **America Inc.**; Reuters Holdings **PLC Annual Report**, 1990, "Products and Technology," Reuters Holdings **PLC**, 1990

¹For further description of the market and vendors purveying financial markets quotations and other data, see U.S. Congress, Office of Technology Assessment, *Trading Around the Clock: Global Securities Markets and Information Technology—Background Paper*, OTA-BP-CIT-66 (Washington DC: U.S. Government Printing Office, July 1990).

²Reuters still carries general news but media traffic has dwindled because newsmen now carry laptops and modems. In Eastern Europe, until recently Reuters sent news to government newspapers that then selectively disseminated that news to other recipients. Now Reuters can deliver general news directly to many newspapers and broadcasters in Central and Eastern Europe through satellite services.

customer-specific transaction data for the targeting of other financial services.

Organized securities markets are also at risk. Stock exchanges and other securities market institutions (e.g., futures and options exchanges) could build telecommunications systems to support round-the-globe, round-the-clock trading through the exchange; but they are slow in picking up this challenge. ¹¹ Information services providers, such as

Reuters, are offering off-exchange electronic trading and transactions services such as Dealing 2000, Instinct, and GLOBEX (the latter developed jointly with Chicago futures exchanges). (See box 4-A.) The traditional markets could find themselves bypassed. Brokers/dealers who want to do arbitrage and 24-hour trading will presumably use any services provider, and information companies are seeking to develop value-added services.

¹¹ For a thorough discussion of this challenge, see U.S. Congress, office of Technology Assessment, *Trading Around the Clock: Global Securities Markets and Information Technology—Background Paper*, OTA-BP-CIT-66 (Washington DC: U.S. Government Printing Office, July 1990).

Electronic Data Interchange

In the long run, the greatest competitive threat to banks as a result of information technology may come through electronic data interchange (EDI). EDI is a specialized application of electronic mail, allowing business to transact the transfer of customized business forms such as invoices, purchase orders, and shipping notices. EDI systems can also verify authorization on orders, connect orders with invoices, and send payment instructions to banks.

This definition conceals the fact that at its ultimate extension, EDI approaches electronic funds transfer (EFT), the process through which banks move funds from one account to another or from one bank or banking location to another. The generation of electronic invoices has been actively developed faster than generation of payment orders (one reason being the desire not to lose float).¹² But like EFT, EDI allows a buyer to authorize its bank to transfer funds to a seller; both use the bank as a clearing-house. The payment remittance transaction can act as both authorization and remittance history; it is passed through the bank which strips the information needed to effect the money transfer and forwards the rest of the information to the trading partner. Corporations with EDI networks could continually net transactions between themselves and their suppliers and customers who connect to the network, and only at the end of the day authorize one final net funds transfer through the banking system to settle the day's business. This would greatly reduce the role of banks. (The question of payment risk would have to be resolved.)

While the net payment must go through the bank, all intermediate payment remittances could go directly from buyer to seller, or if there is a third-party service provider, from customer to vendor. In this case the bank would be providing little or no value-added service, and might be able to charge only 'commodity prices' for passing money through its system.¹³

The use of EDI for financial applications is growing rapidly as the number of EDI trading partners grows. State government policies encouraging such applications as electronic State tax payments and child support payments account for part of this growth. However, corporate exchanges are increasing more rapidly.¹⁴

This clearly poses a competitive challenge to banks. Some banks are positioning themselves to become EDI "hubs" or suppliers. In the United States, they already offer customers ways to pay their suppliers electronically, such as automatic debit agreements. Banks have the strong advantage of being able to finalize payments. They have built cash management services on their ability to transfer funds and their computerized processing capability; they could market general EDI products tied to the cash management services. Citibank, for example, already offers EDI as part of cash management services.

EDI systems can, in other words, be operated by banks, public telecommunications operating companies, suppliers of third-party value-added services, corporations (connecting to suppliers, vendors, and banks), or various combinations of these. AT&T, Istel, Sprint, and Bell Atlantic offer EDI services. Several European PTTs are planning to develop them. In the United Kingdom, Barclays Bank, Lloyds, Midland, and National Westminster offeror plan to offer EDI systems.¹⁵ Value-added networks are also already providing payment-related EDI services (i.e., IBM's International Network, GEIS, and British Telecom's Tymnet). In both the United States and the United Kingdom, corporate EDI systems are proliferating; about 3,000 United Kingdom companies now electronically issue order forms or invoices.¹⁶

EDI networks in both countries are still rudimentary. For EDI to work effectively, it must incorporate "business semantics" as well as data standards; that is, it must capture the steps and sequence in, for example, a transaction process. At the international

¹² Phyllis K. Sokol, *EDI: The Competitive Edge* (New York, NY: McGraw-Hill Book CO. Intertext Publications, 1989), p. 172.

¹³ *Ibid.*, pp. 172-175.

¹⁴ The number of corporate partners tripled from the final quarter of 1990 to the final quarter of 1991. Stephen M. Lewis, "Banks Increase Role in Financial EDI," *EDI World*, July 1992, pp. 34-38.

¹⁵ Della Bradshaw, "Corporate Cheque-Writing Draws to an End," *Financial Times*, Nov. 7, 1990, special section, "Information Technology in Finance," p. vii. Bradshaw reports that each payment would cost about L.2 (approximately U.S. \$3.60), plus a small network charge; the estimated cost of corporate payment by check in the United Kingdom is estimated at L.5 to 30 (U.S. \$9 to \$54).

¹⁶ *Ibid.*

level, this is a particularly severe problem because U.S. banks have operating procedures very different from those in Europe.¹⁷

Today, a full EDI system usually requires special protocol conversions and a prearranged business agreement between partners as to the protocols to be used. Various communities of users use different subsets of X12. (the standard under development by the American National Standards Institute Committee X12) that are still not compatible. Thus each pair of partners must negotiate an agreement before they can interchange data. This is very different from a general electronic mail system, where each user has a mailbox that can accept unstructured mail from others on the system. But at present, EDI networks offered by most vendors do not have direct connections between suppliers, vendors, banks, or other participants. They provide mailboxes reached through 800 numbers. EDI messages sit in an electronic mailbox until they are retrieved by the addressee.

The need for negotiated protocols between each EDI user-pairs will eventually be overcome. There are increasing pressures on multinational corporations and financial institutions to adopt message text standards for EDI. The International Standards Organization (ISO)¹⁸ committees are working to develop an international standard called EDIFACT. SWIFT is moving to EDIFACT, and EC directives also call for moving to EDIFACT. U.S. banks will have to decide whether to go along. If they do not, they will be at a competitive disadvantage in European operations. If they do go along, they will have to support EDIFACT, plus X12. for domestic applications, plus ACH (Automated Clearing House) standards. This triple support will be costly.

There are still unresolved legal issues related to EDI. In Europe, some laws require that various kinds of documents be on paper to convey title or to demonstrate the existence of a contract. A European Model EDI Agreement is being developed to serve as a standard contractual framework for parties in EDI trade relationships.¹⁹ In the United States, computer documents are generally admissible as

evidence if they can be shown to be part of a ledger constructed and kept in accord with "normal business practices." There is, however, still some uncertainty or unsettled legal questions in this area.

Traditionally, corporations (in making payments, lending and borrowing, investing, and other financial transactions) usually interacted with each other through the intermediation of a bank-or, more often through a series of interbank transactions. When these exchanges became electronic, each corporate network became in effect an extension of a bank-operated network. Third-party service providers with value-added networks (VANS) can expedite the transmission of financial data between partners, but only a bank can provide final settlement of the payment obligations. Banks and VANS are now forming business alliances in which the VANS transmit the payment information and the bank provides settlement. But the VANS are interposed between banks and their customers, allowing corporations to deal directly with each other while only the VAN itself connects to the bank network.

It is likely, therefore, that EDI services will change the way banks operate and the way they relate to each other and to customers. To avoid being cut out of the loop, banks will need closer communications through direct electronic connections with their customers, such as were possible in the past only with correspondent banks and a few large corporations. Chase Manhattan Bank, for example, offers a full range of services, handling transmission of electronic invoices and purchase orders as well as final payment, with no third-party VAN involved.²⁰

Only the largest U.S. banks are active in delivering financial services to overseas customers, due to the high costs of maintaining private international networks to support enhanced services. Mid-sized and smaller banks usually serve overseas corporate customers through foreign correspondent banks. Smaller banks have begun to use international VANS to handle networking and information processing; they also may use them for EDI services. By making it easier for smaller financial institutions to operate in other countries, EDI systems compete

¹⁷ This section draws on discussions with Judith Fincher, EDI marketing manager for HFSI, Inc.

¹⁸ The ISO is a multinational organization that promotes and coordinates international standardization.

¹⁹ Andre Bertrand, "EDI: the Final Draft of the European Interchange Agreement," *International Computer Law Advisor*, vol. 5, No. 12, September 1991.

²⁰ Lewis, *op. cit.*, footnote 14, p. 38.

with SWIFT. In response, SWIFT 2, now under development, will have EDI capabilities.

EDI makes it difficult to distinguish between the competitive networks of value-added suppliers and the cooperative bank-owned networks for interbank funds transfers (e.g., SWIFT, CHIPS). This creates a situation where a nonfederally regulated entity offers payment services. The question of oversight of international banking will be much more difficult.

Traditional clearing arrangements for cross-border payments could be bypassed as new financial service products are developed. Because EDI will change the way financial institutions interact, there may be new kinds of payment risk, and new approaches to control risk will be needed. The distinction made by the National Commission on Electronic Funds Transfer in 1976, between a) transfer of data related to financial transactions, and b) transfer of funds into or out of a depository account, is beginning to break down in the face of technological innovations.

Electronic Trading Networks

Supplying financial market data (such as "last sale" prices, bids, offers, and quotations) has become a "commodity market." Stock and futures exchanges make data available to any reseller or distributor in digitized form. Information services suppliers are moving to compete by offering value-added services, including some that enable buyers and sellers to complete a trade or transaction (except for final payment). Dealers and institutional investors trade directly with each other through the electronic network, rather than through brokers or organized markets such as stock exchanges.²¹ Reuters in 1981 began the Monitor Dealing Service to allow foreign exchange dealers to negotiate transactions over Reuters' network and dedicated terminals. About 40 percent of the interbank foreign exchange

trading now takes place on Monitor. Dialing and automated central matching was added in 1992.

In 1987 Reuters bought an electronic securities trading system, Instinct (developed a decade earlier by a broker/dealer). Instinct now executes trades of about 13 million shares a day. In cooperation with two U.S. futures exchanges, Reuters has also developed a network for global futures trading (GLOBEX) that will allow electronic trading of futures and options of the Chicago Board of Trade and the Chicago Mercantile Exchange. GLOBEX opened on June 25, 1992.

In the meantime, Telerate started, then abandoned, a joint venture with AT&T to develop a competing trading service. Quotron is now developing an electronic execution network for foreign exchange. Another currency trading system, Electronic Brokerage System (EBS) is being developed by a consortium of banks. The only electronic trading system in a U.S. exchange²² is in the New York Cotton Exchange (in its index futures division known as Finex). It accommodates nearly 24-hour trading. Its average daily turnover immediately increased about 62 percent when it installed the system—about 30 percent of the trading is done overnight.²³

Global trading systems require international standards. They may ultimately be a key driving force for development of integrated services digital network (ISDN) technology. Many serious technical problems are yet to be solved. Multicast dissemination of market data is essential for an automated trading system. But market data disseminated from a central point take longer to reach some market participants in various parts of the world than they do to reach others. Even a few seconds delay can give participants an advantage over others who receive the information later. ISDN specifications for public networks do not yet allow the market information to be received simultaneously worldwide.²⁴

²¹ U.S. Congress, Office of Technology Assessment, *Trading Around the Clock: Global Securities Markets and Information Technology*, OTA-BP-CIT-66 (Washington, DC: U.S. Government Printing Office, July 1990).

²² "The Arizona Stock Exchange," formerly known as Wunsch Auction Systems, Inc., is an electronic system operating a single price auction daily, in over 3,000 equities. It was granted exemption by the Securities and Exchange Commission (SEC) from registering as a stock exchange for purposes of regulation, and it is not a self-regulatory organization as are registered U.S. stock exchanges. It is approved by the Arizona Corporation Commission and the Arizona Commerce and Economic Development Commission. For discussion of single price stock auctions and the beginnings of Wunsch Auction Systems, Inc., see U.S. Congress, Office of Technology Assessment *Electronic Bulls & Bears: U.S. Securities Markets & Information Technology*, OTA-CIT-469 (Washington DC: U.S. Government Printing Office, September 1990).

²³ Anite Raghavan, "Tiny Finex Takes Big Step in Round-the-Clock Trading," *The Wall Street Journal*, Apr. 8, 1992.

²⁴ Both DEC and IBM have said that they will have simultaneity in their proprietary network software (DEC as part of their Trading Platform, IBM as part of their DataTrade offering) but this has not yet been demonstrated.

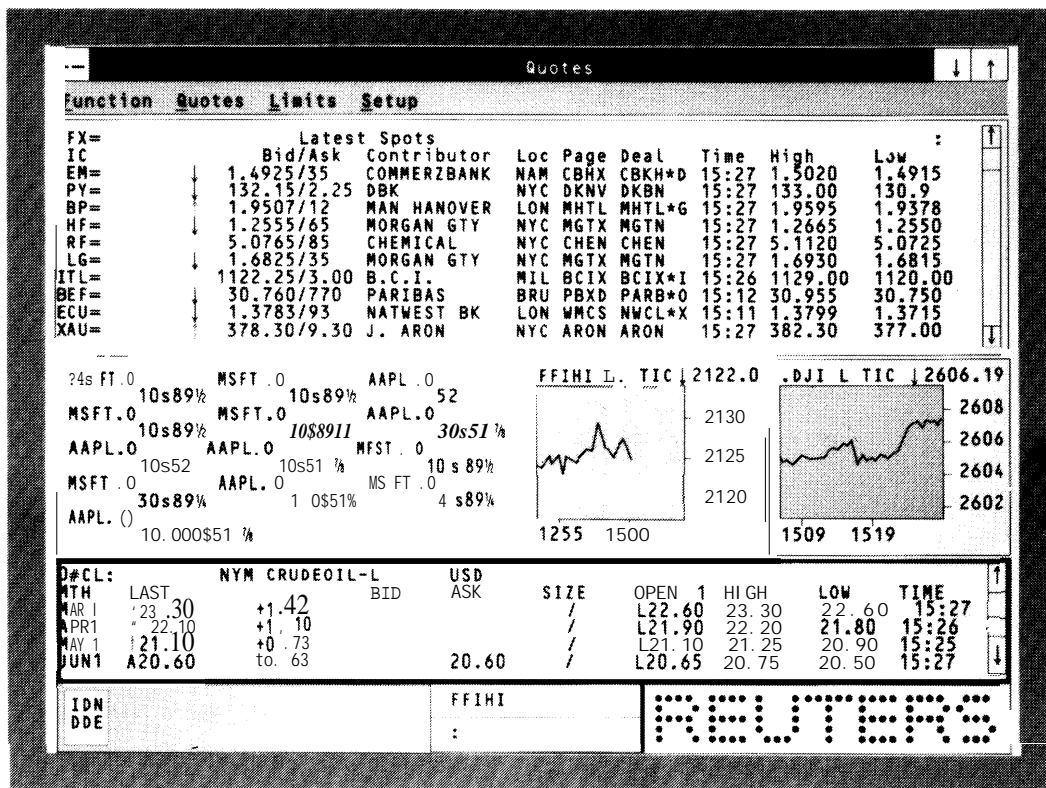


Photo credit: Reuters

International financial data and news on a Reuters terminal.

If multicasting of market information is implemented, it is still not assured that all subscribers will receive the transmission. If some subscribers do not receive the information, they will be using incorrect or dated information. There is no foolproof system to verify the receipt of the information by each subscriber.²⁵ If there are line failures, market participants may be unable to place or cancel orders, or trades may take place even though a cancellation was entered. Reuters had similar problems with its trading systems but asserts that the problems have been overcome.

As these problems are solved, however, electronic trading systems will come into direct competition with today's face-to-face markets (e.g., the New

York Stock Exchange) and with telephone-based dealer markets such as the government bond market and the over-the-counter stock market. Brokerage houses interviewed by OTA said that electronic trading systems will, at least, change the way they do business, and may ultimately put them out of business.

OTA, in an earlier study, concluded that such electronic trading systems may be the "stock exchanges of the future."²⁶ These trading systems are evolving without much regulatory oversight (the Securities and Exchange Commission has so far refrained from regulating them as exchanges). Regulatory problems will emerge as global systems are implemented.

²⁵ Letter to OTA from Garth Eaglesfield of E. Consulting Services, Feb. 25, 1991.

²⁶ U.S. Congress, Office of Technology Assessment *Electronic Bulls & Bears: U.S. Securities Markets & Information Technology*, OTA-CIT-469 (Washington DC: U.S. Government Printing Office, September 1990).