FEDERAL RESERVE BANK
OF DALLAS

ROBERT D. McTEER, JR.
PRESIDENT
AND CHIEF EXECUTIVE OFFICER

DALLAS, TEXAS
75265-5906

March 21, 1994

**Notice 94-32**

**TO:** The Chief Operating Officer of
each financial institution in the
Eleventh Federal Reserve District

## SUBJECT

**Expansion of Fedwire On-line Funds Transfer Service Operating Hours**

## DETAILS

The Board of Governors of the Federal Reserve System has announced the approval of the expansion of Fedwire on-line funds transfer service operating hours to 18 hours a day, from 12:30 a.m. to 6:30 p.m. Eastern Time (ET), five days a week, beginning in early 1997. A specific implementation date will be announced approximately one year in advance of the effective date.

Intraday credit from the Federal Reserve will be available during expanded hours on the same terms that it would be provided from 8:30 a.m. ET to 6:30 p.m. ET. Further expansion of the funds transfer operating day could be considered following several years of experience with the new schedule. Additionally, the Board announced that current Fedwire securities transfer service operating hours will not be expanded until after the implementation of new service capabilities that permit receivers of securities to control the use of securities-related intraday Federal Reserve credit.

Public comment will be sought later this year on new service capabilities that permit users the option to participate in expanded securities transfer service operating hours and to control the receipt of securities that are delivered to them during expanded hours.

## ATTACHMENT

A copy of the Board's notice as it appears on pages 8981-90, Vol. 59, No. 37, of the Federal Register dated February 24, 1994, is attached.

**MORE INFORMATION**

For more information, please contact Jonnie Miller at (214) 922-6433. For additional copies of this Bank's notice, please contact the Public Affairs Department at (214) 922-5254.

Sincerely yours,

Robert D. McTeer, Jr.

[Docket No. R-0778]

## Federal Reserve Bank Services

**AGENCY:** Board of Governors of the Federal Reserve System.

**ACTION:** Notice.

**SUMMARY:** The Board has approved an expansion of Fedwire funds transfer operating hours for the public policy benefits that will result through the use, over the long term, of the service by banks individually and through clearing groups. The Board believes that the potential, long run benefits from offering final payment capabilities that will strengthen interbank settlements outweigh the costs to the Federal Reserve of expanding the Fedwire funds transfer service operating hours. Over time, longer Fedwire funds transfer hours can contribute to reductions in Herstatt risk through innovations in payment and settlement practices. As well, the Fedwire funds transfer service will become a tested tool for managing settlement risk early in the day during times of financial stress.

Specifically, the Board is announcing that the hours of operation of the

Fedwire on-line funds transfer service will be expanded to 18 hours per day, opening at 12:30 a.m. e.t. and closing at 6:30 p.m. e.t., five days per week (Monday through Friday) to become effective in early 1997. A specific implementation date will be announced approximately one year in advance of the effective date. Intraday credit from the Federal Reserve will be available during expanded hours on the same terms that it would be provided from 8:30 a.m. e.t. to 6:30 p.m. e.t. Further expansion of the funds transfer operating day could be considered following several years of experience with the new schedule.

In addition, the Board is announcing that current Fedwire securities transfer operating hours will not be expanded until after the implementation of new service capabilities that permit receivers of securities to control the use of securities-related intraday Federal Reserve credit. Public comment will be sought in 1994 on new service capabilities that permit users the option to participate in expanded securities transfer service operating hours and to control the receipt of securities that are delivered to them during expanded hours. This request for public comment could be combined with a request for views on the use of similar service features during regular securities transfer operating hours. In the case of expanded or regular hours, but especially in the latter case, a key issue concerns the effects of such changes on the liquidity and efficiency of the U.S. government securities market.

**FOR FURTHER INFORMATION CONTACT:** John H. Parrish, Assistant Director (202/452–2224), Gayle Brett, Manager (202/452–2934), or Lisa Hoskins, Senior Financial Services Analyst (202/452–3437), Division of Reserve Bank Operations and Payment Systems, Board of Governors of the Federal Reserve System. For the hearing impaired only, Telecommunication Device for the Deaf (TDD), Dorothea Thompson (202/452–3544), Board of Governors of the Federal Reserve System, 20th and C Streets NW., Washington, DC 20551.

**SUPPLEMENTARY INFORMATION:** The growth in financial market activity worldwide, and in foreign exchange market activity in particular, has heightened attention and sensitivity to settlement and systemic risks. Market participants, as well as regulators, are particularly concerned about current methods for settling multi-currency, cross-border transactions. Data published by the Bank for International Settlements (BIS) indicate that the daily average value of global foreign exchange market activity was approximately $880 billion in April 1992.[1] The interbank payments generated by foreign exchange transactions account for a substantial portion of the total value of payments settled in many of the industrialized countries.

The most significant settlement risks presented by foreign exchange or other multi-currency contracts involve the risk that a counterparty to such contracts will pay one currency and not receive payment in the contra-currency. Concerns about such risks have been prominent since the failure of Bankhaus Herstatt in 1974, when foreign exchange counterparties of Herstatt made Deutsche mark payments to Herstatt to settle foreign exchange contracts, but did not receive contra-payments in U.S. dollars before the closure of the bank, which occurred at the end of the German banking day. The settlement risk associated with the sequential payment of currencies, and involving the potential loss of the full principal amount of foreign exchange contracts, has come to be known as Herstatt risk.

Despite the rapid growth of the foreign exchange markets since 1974, foreign exchange contracts are currently settled much as they were at the time of the Herstatt episode. For example, in the case of yen-U.S. dollar foreign exchange contracts, the yen amounts due on a particular banking day would be paid and settled in Tokyo before the start of that banking day in New York. U.S. dollar contra-payments would likely be initiated early in the U.S. banking day and settled with finality at the end of the U.S. banking day, some 18 hours after the close of business in Tokyo. Similarly, payments in most European currencies would be made and settled hours before U.S. dollar payments are either initiated or settled with finality. The overall magnitude of Herstatt risks associated with these settlement delays has grown commensurately with the rapid growth in foreign exchange and other multi-currency transactions.

Over the past few years, there has been a series of central bank studies aimed at heightening the understanding and awareness of risks in various international payment and settlement processes. These studies have also provided a common framework for evaluating both new and enhanced interbank settlement arrangements, as well as changes in central bank services, that might be designed to reduce and manage better Herstatt risk. Working groups from the G–10 central banks have published reports, under the aegis of the BIS, on such topics as minimum standards for interbank netting systems, delivery-versus-payment (DVP) in securities settlement systems, and options for enhanced central bank payment and settlement services with respect to multi-currency and cross-border transactions.[2]

The recent report on central bank services, for example, pointed to the significant expansion of the operating hours for large-value payment systems as an important central bank option that could contribute to reductions in risk in settlement practices. Longer hours for central bank large-value payment systems would provide the banking sector[3] with additional flexibility in developing innovative methods to reduce time delays between the settlement of the different legs of foreign exchange contracts. Such innovations might include the development of delivery-versus-payment techniques, in which one currency is paid (settled) when and only when the contra-currency is also paid (settled), either by individual correspondent banks or by groups of banks that are members of clearing arrangements. Over the long run, such arrangements could substantially reduce Herstatt risks in the settlement of multi-currency contracts.

Even without the development of delivery-versus-payment techniques, the possibility of greater harmonization of the timing of currency settlements based on longer operating hours of central bank large-value payment systems could help reduce time delays and risks in settlements.

Significant advances in information technology have been introduced to banking and financial markets in recent years. The level of automation and sophistication of banking systems has increased rapidly and likely will continue to do so for some time to come. In this environment, and particularly during a time of increasing volumes, values, and sophistication of financial transactions, advanced technology

[1] See "Central Bank Survey of Foreign Exchange Market Activity in April 1992" published by the Bank for International Settlements, Basle, March 1993.

[2] Report on Netting Schemes, February 1989; Report of the Committee on Interbank Netting Schemes of the Central Banks of the Group of Ten Countries, November 1990; Delivery Versus Payment in Securities Settlement Systems, September 1992; Central Bank Payment and Settlement Services With Respect to Cross-Border and Multi-Currency Transactions, September 1993. These reports are available through the Bank for International Settlements.

[3] For discussion purposes only, references to bank include all depository institutions, such as commercial banks, savings institutions, and credit unions. As used in this docket, the term private-sector bank means any bank (including a Federal Home Loan Bank) other than a Federal Reserve Bank.

needs to be applied to payment systems so that these systems can provide for both high efficiency and low risk in the settlement of all kinds of economic transactions. The adoption and implementation of this kind of technology, however, requires significant lead times and careful, advanced planning.

Against this background, and following public comment on the Board's October 1992 proposal to open the Fedwire funds transfer service two hours earlier in the morning, the Board directed a staff task force (Fedwire Study Group, see Appendix A of this notice) to discuss the issues involving longer Fedwire hours with representatives of commercial banks and other interested members of the public and to analyze the associated public policy concerns. These discussions helped clarify the issues relating to the expansion of Fedwire hours and the difficulties in devising new techniques to reduce settlement risks.

Consideration of the appropriate operating hours for the Fedwire funds and securities transfer services must, in the first instance, take account of the Federal Reserve's responsibilities as a central bank to support final interbank settlement. The Federal Reserve Banks provide final interbank payment and settlement services to the banking system through the transfer of banks' balances (reserves and clearing balances) on deposit with Reserve Banks. These balances—also called central bank money—are free of default risk and are an integral part of monetary arrangements for the U.S. dollar. "Instantaneous" intraday final payment in risk-free, central bank money is delivered operationally to banks through the Fedwire funds and securities transfer services. The benefits of such instantaneous intraday final payment in central bank money are, in turn, available to the public through the payment services provided by banks to their customers. To achieve this level of finality, Fedwire and similar sophisticated central bank payment services rely on a processing technique known as real-time gross settlement. In fact, most G–10 central banks currently provide, or are in the process of introducing, real-time gross settlement payment services, along the lines of the Fedwire funds transfer service.[4] (See Appendix B of this notice for a discussion of the structure of large-value interbank payment arrangements.)

The following two public policy objectives can be stated for the Fedwire funds and securities transfer services. These public policy objectives are useful as a guide to analysis of expanded operating hours and were used by the Fedwire Study Group to set the stage for discussions held with the public. Fedwire should:

(1) Provide a means that can be used to enhance the safety and efficiency of U.S. dollar settlement arrangements, including arrangements that rely on interbank settlement of netted positions, particularly during periods of financial stress.

(2) Respond to the needs of both existing and emerging financial markets, including overseas markets, which depend on the U.S. dollar and are increasingly reliant on state-of-the-art technology.

Members of the Fedwire Study Group met with representatives of various commercial banks, broker-dealers, and clearing organizations, and with a group of corporate treasurers to discuss current problems in payment and settlement arrangements. The Fedwire Study Group encountered a diversity of views within the financial industry, and even within individual organizations, regarding approaches to managing settlement risk and the use of Fedwire to obtain real-time gross settlement in central bank money outside of current operating hours.

The diversity of views is, in part, related to the functional responsibilities of the individuals interviewed. For example, a number of persons with credit management responsibilities in banks and other financial firms tended to favor expanded Fedwire hours based on the potential benefits associated with access to final, that is, irrevocable and unconditional, settlement using central bank money—notably, potential reductions in counterparty and systemic risk. In contrast, individuals with responsibilities for transaction processing services and information technology within banking organizations tended not to favor an expansion of Fedwire operating hours because, for example, (1) they could not identify customer demand for longer Fedwire hours, (2) there would be costs and operational challenges associated with "off hour" services, and (3) competitive responses by rival banking organizations would compel them to undertake product and operational changes. In addition, many of those interviewed also pointed to the charging of fees for Federal Reserve intraday credit as creating a disincentive to the use of Fedwire funds and securities transfer services during both regular and expanded hours of operation.

A main concern raised during the meetings held by the Fedwire Study Group, particularly by executives and senior credit managers, was that of settlement risk in foreign exchange dealings, or Herstatt risk. Those expressing concern noted, however, that while expanded Fedwire funds transfer operating hours might be useful as a component part of some new approaches to controlling Herstatt risk, without changes in overall settlement practices, longer hours would not be able to make a major contribution to risk reduction. Further, changes in risk management techniques and settlement practices would need to take account of a variety of operational and financial factors for different currencies. Some of these issues are discussed further in appendix C of this notice.

Given that there is a reduced tolerance for temporal risk in settlements, especially—but not solely—settlement of multi-currency transactions, the Board anticipates that efforts to control settlement risk will continue, with or without the support of central banks. The Board believes, however, that final, real-time gross settlement through Fedwire should play an important part in market efforts to control risk more effectively. As discussed earlier, final settlements in central bank money are free of default risk and, as a result, settlement in central bank money provides the highest possible degree of certainty and liquidity in interbank settlements.

The routine availability of Fedwire on an expanded schedule will add final interbank payment capabilities that the markets, the Federal Reserve, and other federal regulatory agencies recognize as being particularly important during periods of financial stress. Only by becoming familiar with the use of expanded Fedwire will banks be prepared operationally and procedurally to use expanded final payment capabilities effectively. Over time, as the availability and use of expanded Fedwire capabilities becomes more routine, operating procedures for using Fedwire earlier in the day will become well tested and integrated into banks' operations and contingency planning.

In addition, expanding Fedwire operating hours will eliminate an operational barrier that stifles potentially important innovation in privately-provided payment and

[4] The central banks of the European Union have recommended that every central bank in the European Union install a real-time gross settlement system. See Report to the Committee of Governors of the central banks of the member states of the European Economic Community by the Working Group on EC Payment Systems, "Minimum Common Features for Domestic Payment Systems" (November 1993).

settlement services. Expansion of Fedwire operating hours will provide opportunities for market participants to experiment with the use of real-time gross settlement to meet a variety of market needs. New bank services and settlement arrangements based on real-time gross settlement will have the potential to reduce significantly banks' own and their customers' settlement risks in the foreign exchange and other markets.[5] A particular application could be the development of delivery-versus-payment settlement techniques either for individual foreign exchange transactions or for obligations arising from netting arrangements.

A Federal Reserve initiative to expand Fedwire funds transfer operating hours also demonstrates a long-term commitment to increasing the availability of real-time gross settlement services in the international financial system. The Federal Reserve is taking a leadership role in the international financial community in seeking to stimulate new or enhanced central bank services to facilitate cross-border, multi-currency payments and settlements. By expanding the operating hours of Fedwire, the Federal Reserve will make it possible for banks to settle the U.S. dollar, with finality using central bank money, during the banking and trading days of major international financial centers in Europe and the Far East.[6] Such a Federal Reserve initiative looks to private sector banking organizations to develop improved multi-currency services and settlement arrangements, in some cases relying on Fedwire.

Finally, a clearly stated Federal Reserve policy regarding Fedwire operating hours provides the certainty and stability banks have indicated that they need to develop their own business and technology plans. This approach to communicating Federal Reserve policy was requested both in public comments on the Board's October 1992 proposal and in meetings with representatives of the industry held by the Fedwire Study Group. As noted here, expanded Fedwire funds transfer operating hours are announced three years in advance of implementation. Banks will have a clear understanding of the Federal Reserve's intentions with respect to its operating hours and could use the lead time to incorporate the expanded hours into their strategic plans for payment services and supporting technical systems.

Fedwire on-line funds transfer operating hours will be expanded to open at 12:30 a.m. e.t. (5:30 a.m. G.m.t. and 2:30 p.m. Tokyo time) to support strengthened, interbank settlement for domestic and cross-border markets. This precedes the opening of the current European banking day by about three hours and overlaps with current payment system and money market hours in Tokyo by about two and one-half hours. This overlap of payment system hours could increase further if, in the future, the operating hours of other national payment systems were expanded.

The closing time for the Fedwire funds transfer service will remain at 6:30 p.m. e.t. (11:30 p.m. G.m.t. and 8:30 a.m. Tokyo time), in order not to delay inordinately the calculation of U.S. dollar positions by U.S. banks providing dollar clearing services to clients operating in the Asian markets, or to disrupt domestic money management. Further, keeping the closing time at 6:30 p.m. e.t. will not disturb the reserve management operations of the large number of smaller U.S. banks that are not active internationally and that are unlikely to participate in an expanded Fedwire operating day.

The Federal Reserve's estimated incremental costs to operate the funds transfer service from 12:30 a.m. e.t. to 6:30 p.m. e.t. will be roughly $2.5 to $4.0 million per year, or about 3 to 5 percent of the total cost of providing the service in 1993. While the operational costs incurred by banks using Fedwire during the expanded operating period are difficult to estimate, such costs would be incurred entirely voluntarily Banks could choose to remain closed during the expanded operating period and thus forego any additional operating costs.

Further, an 18-hour day (beginning at 12:30 a.m. e.t. and closing at 6:30 p.m. e.t.) provides an adequate six-hour quiet period within which banks can perform end-of-day processing and provides for contingency situations. It also provides for a definite period for measuring reserve positions, a requirement for the conduct of monetary policy. There are some other minor issues posed by an 18-hour Fedwire funds transfer day that are discussed in appendix C of this notice.

With respect to Fedwire securities transfer operating hours, under current DVP arrangements, banks do not have the capability to control the timing of deliveries of securities and associated debits to their funds accounts. Accordingly, banks have limited control over the effect of securities-related debits on their funds positions and their use of Federal Reserve securities-related intraday credit. These control limitations could lead to either increased operating costs or increased use of intraday credit, with accompanying charges, during periods of expanded hours. (See appendix C of this notice for further discussion.) In contrast to the Fedwire funds transfer service, therefore, expanding the operating hours of the securities transfer service would likely impose unavoidable costs on a large number of banks. Thus, the Board believes that it is inadvisable at this time to approve an expansion of the operating hours for the Fedwire securities transfer service.

**Competitive Impact Analysis**

During expanded Fedwire funds transfer operating hours, the Federal Reserve Banks will be providing real-time gross settlement in central bank money. While this service cannot be duplicated in the private sector, this situation is no different under expanded operating hours than it is under the existing Fedwire operating hours. Service providers that provide funds transfer services under a netting arrangement could expand their operating hours to coincide with Fedwire operating hours; however, only by setting earlier settlement time(s) and settling through Fedwire could these organizations provide risk-free central bank money earlier in the day to their participants. Service providers that provide real-time gross settlement funds transfer services across their own books could not solely backstop these transactions with central bank money and, thus, could be reliant on their own capital and credit standing to assure participants of final settlement. Again, this situation is no different under expanded operating hours than it is under normal Fedwire operating hours.

By order of the Board of Governors of the Federal Reserve System, February 15, 1994.

**William W. Wiles,**

*Secretary of the Board.*

**Appendix A—Fedwire Study Group**

Bruce J. Summers, FRB Richmond, Chair
Carol W. Barrett, FRB New York
Gayle Brett, Board staff
Paul Connolly, FRB Boston
Lisa Hoskins, Board staff
Dara Hunt, FRB Chicago
Oliver Ireland, Board staff
Barbara Kavanagh, FRB Chicago
Donald R. Lieb, FRB San Francisco
David E. Lindsey, Board staff
Jeffrey C. Marquardt, Board staff

[5] Examples of private sector initiatives currently underway include the development of multilateral netting systems for foreign exchange transactions, such as Exchange Clearing House Organization (ECHO) and Multinet.

[6] Staff notes that the Bank of Japan recently expanded the operating hours for its large-value funds transfer system to later in the Tokyo banking day. Also, as noted earlier, the European Union central banks have recently endorsed the establishment of real-time gross settlement systems in all EU countries as well as closer coordination of operating hours for settlement services.

Christopher J. McCurdy, FRB New York
Gerard J. Nick, FRB Chicago
Patrick M. Parkinson, Board staff
John H. Parrish, Board staff
Israel Sendrovic, FRB New York
A. Patricia White, Board staff.

**Appendix B—Structure of Large-Value Interbank Payment Arrangements**

Most large-value, domestic interbank payments are currently made via the transfer of money balances on the books of the Federal Reserve Banks through the Fedwire system. Fedwire is the large-value payment system operated by the Federal Reserve Banks for the transfer of funds and delivery of book-entry (electronic) securities against payment. Fedwire is a real-time gross settlement system that settles transfers immediately on a transaction-by-transaction basis. The Fedwire funds transfer service is a credit transfer process. That is, a bank sends a funds transfer to the Federal Reserve instructing the Federal Reserve to debit its account for a specified amount and to credit the account of another bank. In 1993, the daily average value of transfers originated over the Fedwire funds transfer system was about $824 billion.

In contrast, the Fedwire securities transfer service, which is the principal means for transferring and settling U.S. government securities,[1] is a debit transfer process that permits the seller of the securities to send a transfer that will result in the Federal Reserve withdrawing funds from the account of the receiver of the securities transfer. The Fedwire securities transfer process is based on the delivery-versus-payment (DVP) principle, whereby the final transfer of securities from the seller to the buyer (delivery) occurs at the same time as final transfer of funds from the buyer to the seller (payment). Fedwire achieves such simultaneous settlement by treating the instruction initiated by the seller as both an instruction to deliver securities to the buyer and an instruction to debit payment from the buyer's reserve or clearing account. In 1993, the daily average value of transfers originated through the Fedwire securities transfer system was roughly $580 billion.

Banks may also provide settlement services to their customers through the final transfer of balances across their books. In addition, banks also use multilateral clearing and settlement arrangements to meet some of their large-value payment needs. In such arrangements, including the Clearing House Interbank Payments System (CHIPS) operated by the New York Clearing House, payment instructions may be entered into a netting system throughout a pre-determined clearing cycle and each participant's net position vis-a-vis the other participants is determined on an ongoing basis throughout the cycle. Settlement for the payment instructions occurs at an agreed upon settlement time. Participants with net debit obligations may satisfy their obligations by transferring funds on the books of a "settlement bank." Central banks can serve as a "settlement bank" for such interbank netting arrangements and, in the case of CHIPS, this role is performed by the Federal Reserve Bank of New York. In this arrangement, CHIPS settling participants in a net debit position send Fedwire funds transfers to a settlement account at the Federal Reserve Bank of New York, which, when fully funded, is the source for payments to participants in net credit positions. In 1993, the daily average value of transfers originated through the CHIPS system was over $1 trillion.

**Appendix C—Issued Associated With Expanded Fedwire Operating Hours**

This appendix analyzes issues associated with expanded Fedwire funds and securities transfer operating hours. The appendix is organized in three parts. First, settlement practices in financial markets are analyzed, with particular attention to Herstatt risk. Second, the operation of the Fedwire securities transfer delivery-versus-payment service is analyzed. Finally, other implementation issues associated with expanded Fedwire hours are analyzed.

*Settlement Practices in Financial Markets*

The following discussion of settlement practices and risks in financial markets takes into account (1) the integrity of settlement during times of financial stress, (2) multi-currency, cross-border settlements, (3) domestic corporate and interbank markets and the needs of the futures markets, and (4) the current availability of bank payment services on a 24-hour basis.

Settlement during times of financial stress. Concerns regarding the ability of counterparties to meet their payment obligations and the certainty of settlement are heightened during times of financial stress. Sudden events that disrupt markets can increase the risk associated with domestic and, in particular, multi-currency transactions, and can contribute to uncertainty, payment delays, and market liquidity problems. If such problems are widespread, systemic risk may be increased substantially. It is during times of stress in the financial markets that the certainty associated with interbank settlement across the books of the central bank takes on added importance.

In the past, the Fedwire funds transfer service has been opened early on an ad hoc basis, at short notice, during times of stress in the financial markets at the request of market participants and regulatory authorities. For example, the Federal Reserve opened the Fedwire funds transfer service early on the days following the October 1987 stock market break and the beginning of the Gulf War. Experience has shown, however, that market participants are not prepared operationally to use facilities, such as Fedwire, when these facilities are made available during "off-hours" on an ad hoc basis at short notice. These difficulties suggest that to be most helpful during times of financial stress, Fedwire should be available in the early morning hours on a more routine basis.

Multi-currency settlements. With respect to multi-currency settlements, the settlement of a foreign exchange contract involves the settlement of both currencies involved in the contract, such as the U.S. dollar and the Deutsche mark or the U.S. dollar and the yen. In such settlements, risk management and efficiency considerations must take into account payment arrangements in the country of issue for each currency, including the relative intraday timing of payments and the finality of payment in the respective currencies. Settlement risk is incurred by paying final funds in one currency before receiving final funds in another currency. As a general matter, the magnitude of settlement risk in the foreign exchange markets has grown substantially, in large part as a result of a vast expansion of foreign exchange trading. At the same time, there has been continued reliance on traditional methods of settling trades one currency at a time with significant delays before related payments and contra-payments become final.

Because the large U.S. cities are in the western-most time zones of the major financial centers, under current settlement arrangements for multi-currency transactions, the U.S. dollar is normally the last currency to be settled. The two charts at the end of this appendix provide information on global time zone relationships and on the operating hours of selected large-value interbank transfer systems in different countries.[1]

On an exception basis today, banks may choose to require final payment of the U.S. dollar leg of a multi-currency transaction either in advance of, or in certain cases simultaneously with, final payment of the contra-currency, as a means to protect against risk of nonpayment.[2] Foreign exchange market participants have indicated that such protective measures are taken, for example, in special cases where counterparties would exceed their U.S. dollar credit lines. Banks, however, find these exception procedures to be very expensive due to the lack of an established mechanism to effect settlements under these terms (that is, final U.S. dollar payment before, or simultaneously with, final payment in the other currency). For exception processing, the parties must negotiate how the related payments are to be made and closely monitor the settlement process to ensure that the payment sequence unfolds as expected.

Substantially earlier Fedwire funds transfer service operating hours as well as later payment system hours for other major currencies will increase the opportunity to achieve simultaneous or near-simultaneous settlements of individual deals involving the U.S. dollar and European and Asian currencies, where needed. Such settlements might involve a variety of new institutional designs for settlements, including private correspondent bank DVP services, new clearing organization procedures, or innovative arrangements that are not readily apparent given current payment system constraints.

[1] Netting is performed outside Fedwire through the Government Securities Clearing Corporation (GSCC) for transactions that settle on a next day or forward basis, with the netted securities and funds positions settled on Fedwire.

[1] These charts were published in the report on Central Bank Payment and Settlement Services with Respect to Cross-Border and Multi-Currency Transactions, Basle, September 1993.

[2] In markets for exchange traded derivative instruments, some settlements are conducted currently using delivery-versus-payment techniques.

Current initiatives to reduce Herstatt risk in foreign exchange transactions point to the need for greater future overlap of final interbank settlement facilities in Asia, Europe, and North America. While in the future Asian and European systems may well be open later during their local banking days, the achievement of a significant overlap in payment system hours also requires earlier opening hours for U.S. payment systems, especially to achieve overlapping hours with Asian markets. With such earlier hours, opportunities may increase substantially for more nearly simultaneous settlements of multi-currency transactions, and associated reductions in Herstatt risk. It should be noted, however, that although simultaneous or near-simultaneous payment for multi-currency transactions reduces the temporal dimension of settlement risk, achieving final payment in one currency against a simultaneous, but provisional, payment in another currency does not eliminate fully Herstatt risk. Therefore, to address fully the problem of controlling Herstatt risk, it is important that the overlap in operating hours include overlap in systems that provide final settlement in central bank money.[3]

Domestic markets. With respect to domestic markets, there are relatively few types of transactions for which immediate and final payment at a particular time during the day is an absolute requirement. The demand for final payment at a particular time during the day for corporate customers is currently quite small and is limited to such things as payments to settle mergers and acquisitions and the distribution of funds from underwritings of securities. In general, because banks often make funds available to corporate customers before final settlement, corporate customers are largely unaware of the distinctions between final and provisional payment or when during the day payments are actually settled. Instead, corporations generally rely on their banks to make decisions regarding how their large-value payments are originated and received.

Even in the interbank markets, participants are typically satisfied with same-day settlement for certain types of transactions. At present, Federal funds contracts do not generally stipulate that payment must be made at or before a specific time of day other than before the close of the Fedwire funds transfer service. Federal funds contracts are generally settled using the Fedwire funds transfer system.

For some futures exchange settlements, the convention today is to accept irrevocable commitments to pay from designated settlement banks to cover clearing members' settlement obligations prior to the start of the current day's trading, with the settlement banks actually fulfilling the obligation via Fedwire funds transfers by 10 a.m. e.t. The futures clearing organizations and the Commodity Futures Trading Commission (CFTC) have expressed a desire for settlement to occur in final funds before the commencement of trading. Such earlier settlement is viewed as reducing risks to futures exchanges and the financial markets despite some concerns that it would merely shift risks from the clearing organizations to their settlement banks. Settlement banks would clearly need to manage carefully their own cash needs earlier in the day in order to make settlement payments at an earlier time, which is not necessary under current arrangements.

Within a few years, there may be a demand for later Fedwire funds transfer hours from banks that provide services to the futures and options markets. This demand could arise from two sources. First, some clearing organizations are progressively moving toward same-day settlement of margin obligations arising from the current day's trading activity. Second, some of the exchanges are contemplating longer trading hours for certain of their products. The exchanges are beginning to incorporate automated trade matching and confirmation systems that will permit timely same-day calculation of all margin obligations. Indications are that these systems, which will remove a significant obstacle to same-day settlement, could be widely adopted within three to five years. Longer trading hours, in combination with the desire for same-day settlement, would argue for a later Fedwire funds transfer service closing time.

To date, there has been little evidence of demand for a materially later closing time for the Fedwire funds and securities transfer services to meet domestic needs. The most likely source of demand to make later payments is from the Pacific time zone. Banks with operations in that time zone, however, have expressed only slight interest in later Fedwire hours in response to requests for comment made by the Board of Governors in 1989 and in 1992. Moreover, many corporate treasurers generally view later-in-the-day payments activity as disruptive to their primary goal of determining the amount of money available for investment. This preference is, of course, conditioned by current conventions in the U.S. money markets, especially the times at which decisions must be made to invest or borrow funds.

Bank payment services. Currently, a number of large, internationally active U.S. banks offer their customers real-time account balance inquiry and payment services on a 24-hour basis. Many of these banks offer the capability to originate payment instructions in up to 60 currencies. Payment orders may be processed as book transfers or held in an electronic queue until the national payment system for the currency to be paid is open for business. Given current queuing practices, there would appear to be some scope for earlier settlement of queued payments if international clearing banks find it advantageous to process customer payments earlier in the day and national payment systems are open to process and settle such payments.

*Fedwire Securities Transfer Service*

As mentioned earlier, most interbank transfers of U.S. government securities are processed through Fedwire. The DVP capability of the Fedwire securities transfer service increases the efficiency and integrity of the securities clearance and settlement process. In fact, the liquidity of the government securities market is partly a function of the Fedwire securities transfer system design, whereby the seller is assured of payment at the time the securities are delivered. While it virtually eliminates settlement risk, the current design of the Fedwire securities transfer service may, in some cases, result in significant demands for intraday credit. Once Fedwire opens in the morning, users of the Fedwire securities transfer service have no control over the time at which they may receive securities on a DVP basis. In particular, since the sellers of securities initiate the DVP transfers, receivers do not have any operational control over the time during the day when their securities and funds accounts are credited and debited, respectively.

Since the inception of the Board's Payment System Risk Reduction Program, the implications of the cost of intraday credit have taken on greater significance for participants in the Fedwire DVP securities transfer service. Receivers of securities, especially those maintaining relatively low intraday cash balances, are not in a position to manage their use of intraday Federal Reserve credit resulting from securities deliveries. Because of the inability to review transfers prior to receipt, this problem may be compounded if the securities delivery is not known, or the delivery amounts are incorrect. Although receivers of securities can reverse transfers received in error virtually immediately after delivery and payment occur, they must very actively monitor and manage their activity to be in a position to do so.

The charging of fees for Federal Reserve intraday overdrafts has important implications for expanding the Fedwire securities transfer operating hours. An expansion of such operating hours could impose significant cost burdens on a potentially large number of banks that would need to make a choice between staffing their operations to manage their intraday overdraft positions, or remaining closed and incurring the costs of intraday overdrafts that might arise from securities deliveries during "off-hours." In an effort to provide participants with the tools necessary to manage their operations and credit costs, the Federal Reserve is designing new Fedwire securities transfer service features, including receiver controls (such as receiver-authorized deliveries) and a mechanism allowing participants to choose whether to use the service during non-standard business hours. The Board believes that public comment on these new service features is required because of the impact they would have on senders and receivers of securities transfers and on the operation of the U.S. government securities market.

[3] Fedwire in the United States and BOJ-NET in Japan, for example, currently provide real-time gross settlement services in the U.S. dollar and yen respectively. Significant projects to establish real-time gross settlement systems are now underway in France, the United Kingdom, and other countries, and legal developments are occurring that will help ensure the availability of payment systems in all or most European countries that provide for final payments on an intraday basis. Thus, in the next few years, concerns about the lack of intraday final payment capabilities in major industrialized countries are likely to be reduced substantially.

Analysis of a potential expansion of Fedwire securities transfer service operating hours must also take into account "free" transfers of securities, that is, the movement of collateral. The ability to move collateral during early morning Fedwire operating hours was identified as a potentially useful measure by several clearing organizations and banks in their comments on the Board's October 1992 Fedwire operating hours proposal. The ability to pledge collateral during early morning hours can reduce settlement uncertainties and enhance participant liquidity, particularly in times of financial stress.

The discussion above suggests that careful attention must be given in the near term to features of the Fedwire securities transfer service that limit the control users of the service have over the receipt of securities, particularly if the hours of operation for the service were to be lengthened. The Board anticipates that the implementation of new service capabilities, such as those discussed earlier, could reduce or even eliminate the involuntary costs imposed on receivers of securities transfers, especially during expanded operating hours. Under these conditions, the public benefits of expanding these operating hours could be significant and would be derived in part from the opportunities to use securities as collateral, or as a near-cash equivalent, for purposes of meeting obligations that arise overnight. At present, however, an expansion of hours would not be advisable. The Board believes that the issues surrounding the development and use of new features for the Fedwire securities transfer service can be effectively addressed through the public comment process during 1994.

*Implementation Issues*

Because of the aforementioned complications associated with operating characteristics of the current Fedwire securities transfer system, the following analysis of implementation issues is limited to an expansion of Fedwire funds transfer service operating hours. The key implementation issues addressed in this section are technology, operational costs, monetary control and reserve management, overlapping business and calendar days, and the Federal Reserve's intraday overdraft policy.

Technology issues. Banks as well as other financial and non-financial institutions are installing or planning to install advanced technology to support their critical business functions. For example, many major banking organizations employ real-time control procedures to manage their own and customer payments over major large-value electronic payment systems. Many financial organizations are also continuing to automate major dealing functions and integrate these with their clearing and payment systems.

In turn, in order to provide the banking and financial system with advanced tools with which to design payment and settlement arrangements using central bank money, the Federal Reserve is installing advanced computing and communications systems. These systems will support all of the Federal Reserve's national payment services and accounting functions. Among other things, this new technology will enable the Federal Reserve to provide real-time gross settlement services in central bank money virtually around-the-clock. Other benefits of this technology are expected to include greater payments processing efficiency, improvements in the reliability and availability of critical payment systems, and enhanced contingency processing capabilities.

Most existing accounting and other back office systems require that banks, including Federal Reserve Banks, accumulate a wide range of transactions throughout the day in order to calculate and balance customer account positions. Traditionally, this "end-of-day" processing has been treated as a batch operation for which large quantities of information are accumulated from a variety of sources and then processed overnight. For example, information received from large commercial banks that provide corporate payment services and U.S. dollar clearing services reveals that their current systems have been designed to perform end-of-day processing within an approximate six- to eight-hour window. Most large commercial banks are either currently changing, or have plans to change, their systems to move to a two- to four-hour end-of-day processing window, an evolution which should be completed within about five years.

Contingency processing requirements also need to be considered in connection with proposals to expand Fedwire funds transfer operating hours, or bank payment system operations more generally. Specifically, for large commercial banks, an 18-hour operating day compresses the current end-of-day processing period, including a "cushion" of time to deal with the failure of regular systems or other unexpected operational disruptions that must be resolved before opening for the next day's business.

The Board believes that current efforts by banks and other financial institutions to use technology to improve the efficiency of end-of-day processing will, over the next several years, reduce the time necessary to perform these activities. Thus, with a 3-year lead time, an 18-hour Fedwire day should provide an adequate cushion of time for end-of-day processing under normal and most contingency conditions.

Operational costs. The Reserve Bank's incremental costs to expand operating hours can be estimated fairly accurately. The estimated incremental costs to the Federal Reserve of lengthening the current 10-hour funds transfer operating day to 18 hours are relatively small compared to the total cost of providing the service. Specifically, the Board estimates that an 18-hour day beginning at 12:30 a.m. e.t. will add roughly $2.5 to $4.0 million to annual Fedwire funds transfer operating costs, or about 3 to 5 percent of 1993 total service costs.[4] (The Board recently asked staff to study issues related to Federal Reserve pricing methodology, which is underway.)

[4] The Federal Reserve's estimated incremental costs associated with providing a near 24-hour operation are significantly higher than for an 18-hour operation.

The incremental costs that would be incurred by banks in using the Fedwire funds transfer service during expanded hours are difficult to estimate. In any event, the incremental operational costs to banks of participating in expanded hours would be incurred entirely voluntarily. Banks would make individual business decisions whether to use the Fedwire funds transfer service during expanded hours.

Monetary control and reserve management issues. The Board believes that an expansion of Fedwire funds transfer operating hours, involving a 6:30 p.m. e.t. closing time, does not complicate reserve maintenance for banks. Also, provided that there is a sufficient break in time during the operating day for purposes of measuring reserve holdings, monetary measurement and control problems do not arise for the Federal Reserve. In the event of full 24-hour operations, both monetary measurement and control issues would need careful attention.

Overlapping business and calendar days. One complication associated with a Fedwire funds transfer day that begins earlier than 3 a.m. e.t. concerns asynchronous business and calendar days for domestic payments and possibly for cross-border payments as well. For example, assuming a 6:30 p.m. e.t. closing time and an 18-hour Fedwire funds transfer day, the 12:30 a.m. e.t. opening time is 9:30 p.m. Pacific Time (p.t.). This means that today's business day, as defined by the opening of Fedwire, begins on the prior calendar day in continental United States time zones other than the Eastern time zone. Some clarification or adjustment in accounting practices and possibly legal conventions may be necessary to address this situation. These adjustments do not appear to present large issues and they can be readily addressed through such things as modifications in financial reporting conventions and business practices.

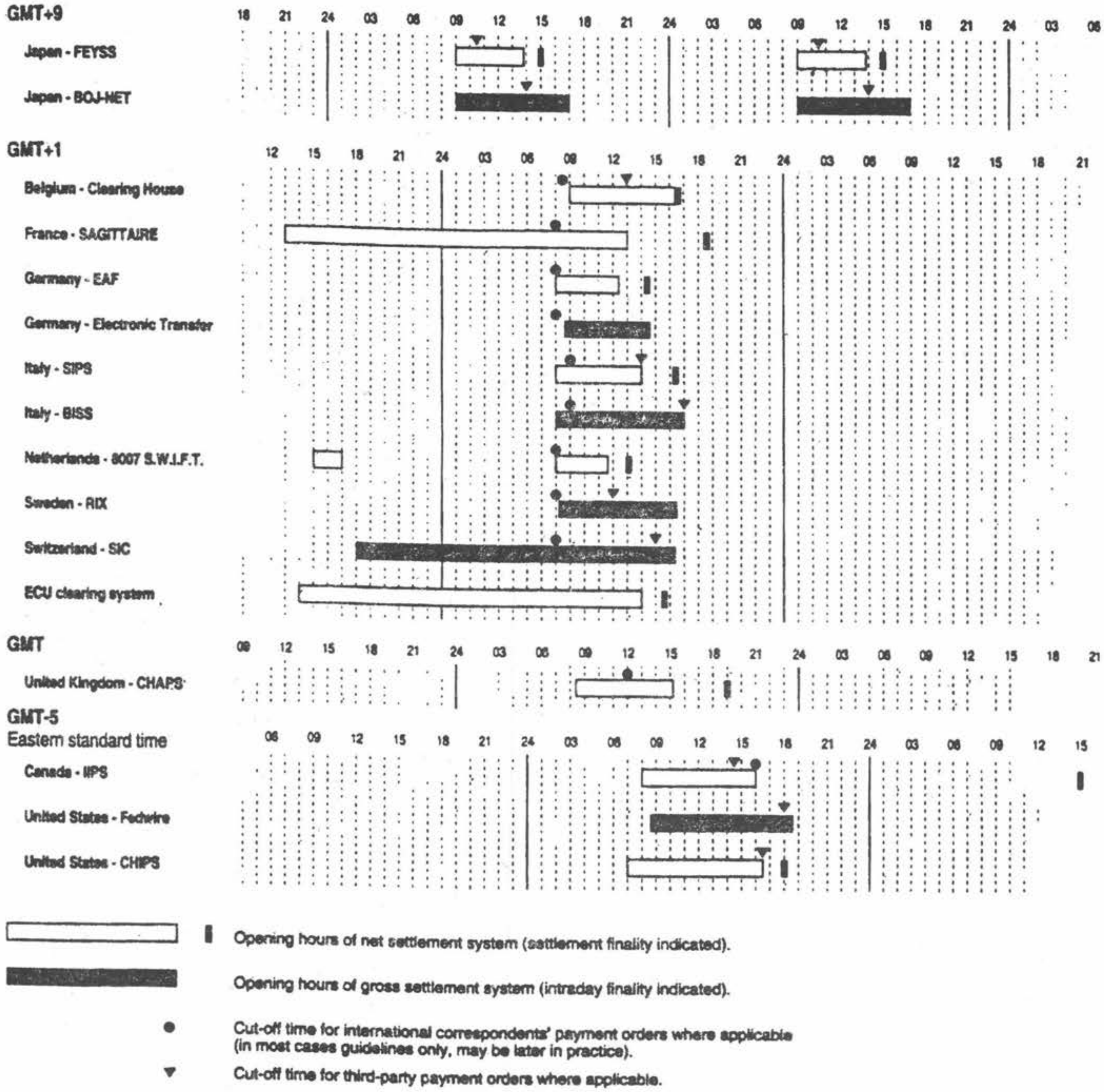
For example, financial reporting conventions that rely on precise "as of" reporting dates and times would appear reasonably to address most reporting issues. Similarly, more precision may be needed in financial contracts about when completion of a payment or other financial transaction must occur. This is a problem that exists today and that is addressed in contracts by specifying the location at which payment is to be made and the date ("pay to my account in San Francisco on x date"). The new problem posed by an earlier Fedwire opening time could be addressed readily by specifying when during the day payment is to be made at a particular location ("pay to my account in San Francisco by close of Fedwire on x date").

Federal Reserve daylight overdraft policy. In an expanded Fedwire funds transfer operating environment, Federal Reserve intraday credit will be provided to banks on the same basis that it would be provided from 8:30 a.m. e.t. to 6:30 p.m. e.t. That is, eligible institutions will be able to incur intraday overdrafts subject to the net debit caps and daylight overdraft fees in place at the time the overdraft is incurred.

Some adjustments to the intraday overdraft measurement rules will be required. For example, posting times for non-wire transactions settled on the books of the Reserve Banks that are currently tied to the opening of Fedwire, such as ACH and principal and interest payments for securities, need to be adjusted. Since users will be accustomed to the current schedule, which generally results in posting these transactions at 8:30 a.m. e.t., a clear option would be for the Board to consider establishing 8:30 a.m. e.t. as the "explicit" posting time for these transactions.

BILLING CODE 6210-01-P

**Global time zone relationships:**
**Opening hours of selected large-value interbank transfer systems**
For same value day *




* The diagram shows the opening hours, as of August 1993, of selected interbank funds transfer systems as they relate to the same value day; some systems, including SAGITTAIRE and the ECU clearing system, may accept payment orders for a number of value days. As indicated, some systems open on the day before the value day. For Canada, settlement finality for IIPS occurs on the next business day, with retroactive value dating. Precise information on opening hours and cut-off times is provided in the table. For FEYSS, Fedwire and CHIPS, the cut-off time for third-party and international correspondents' payment orders is the same.

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OPERATING HOURS OF SELECTED LARGE-VALUE INTERBANK FUNDS TRANSFER SYSTEM (AS OF AUGUST 1993)

| System | Gross (G) or net (N) | Opening-closing time for same-day value (local time) | Settlement finality (local time) | Cut-off for all third-party payment orders | Cut-off for international correspondents' payment orders | Memo item: Standard money market hours (local time) |
|---|---|---|---|---|---|---|
| Belgium: | | | | | | |
| C.E.C. | N | 13:46–13:45 | 16:30 | 13:30 | 8:30 | (9:00–16:15) |
| Clearing House of Belgium | N | 9:00–16:30 | 16:30 | 13:00 | 8:30 | |
| Canada: | | | | | | |
| IIPS | N | 8:00–16:00 | 15:00 | 14:30 | 16:00 | (8:30–17:30) |
| ACSS | N | 18:00–24:00 | 15:00 | 17:00 | n.a. | |
| France: | | | | | | |
| SAGITTAIRE | N | 8:00–13:00 | 18:30 | n.a. | 8:00 | (8:15–17:00) |
| TBF (planned) | G | 8:00–17:15 | 8:00–17:15 | | 8:00 | |
| Germany: | | | | | | |
| Express electronic credit transfer system | G | 8:30–14:30 | 8:30–14:30 | | 8:00 | |
| Express (paper based) local credit transfer system. | G | 8:00–12:00 | 8:00–12:00 | | 8:00 | (9:30–13:00) |
| EAF | N | 8:00–12:30 | 14:30 | | 8:00 | |
| Italy: | | | | | | |
| BISS. | G | 8:00–17:00 | 8:00–17:00 | 17:00 | 9:00 | (8:30–17:30) |
| SIPS | N | 8:00–14:00 | 16:30 | 14:00 | 9:00 | |
| ME | N | 8:00–16:00 | 16:30 | 16:00 | 9:00 | |
| Japan: | | | | | | |
| FEYSS | N | 9:00–13:45 | 15:00 | 10:30 | 10:30 | (9:00–17:00) |
| BOJ–NET | G | 9:00–17:00 | 9:00–17:00 | 14:00 | n.a. | |
| Netherlands: | | | | | | |
| Central Bank FA System | G | 8:00–15:30 | 8:00–15:30 | 12:45 | n.a. | (8:00–15:30) |
| 8007 S.W.I.F.T. | N | 8:00–11:30 | 13:00 | n.a. | 8:00 | |
| Sweden: | | | | | | |
| RIX | G | 8:15–16:30 | 8:15–16:30 | 12:00 | 8:00 | (9:00–16:00) |
| Switzerland: | | | | | | |
| SIC | G | 18:00–16:15 | 18:00–16:15 | 15:00 | 8:00 | (9:00–16:00) |
| United Kingdom: | | | | | | |
| CHAPS | N | 8:30–15:10 | end of day | none | 12:00 | (9:00–12:00) |
| United States: | | | | | | |
| Fedwire | G | 8:30–18:30 | 8:30–18:30 | 18:00 | 18:00 | (8:30–18:30) |
| CHIPS | N | 7:00–16:30 | 18:00 | 16:30 | 16:30 | |
| ECU clearing system | N | 14:01–14:00 | 15:45 | none | none | (TOM/NEXT) |

[FR Doc. 94–3847 Filed 2–23–94; 8:45 am]

BILLING CODE 6210–01–P