

**14th Payment Systems International Conference  
Recreating the Payment System Franchise - Lost Territory or New Ground?**

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**Visions of Large Value Payment Systems  
Remarks by**

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**I. CENTRAL BANKS AND CREATIVE CHANGE IN THE PAYMENT SYSTEM**

**A. Introduction.**

My travels over the past year have made it clear that central banks have been devoting special efforts to reviewing the scope of their various roles. As the public has become more and more familiar with the monetary policy role of central banks, central banks have continued to be aware of their need to continue to serve the public across all of their "businesses" --- for want of a better word. As I see them, our businesses are: (1) the formulation and implementation of monetary policy, (2) the supervision and regulation of banking and other financial organizations, and (3) the provision of banking and payment services -- issuance and redemption of coin and currency, check collection, operation of an automated clearing house, wire transfer of funds, wire transfer of government book-entry securities free and against payment, registrar, issuing and paying agent for government securities, custody of gold and securities, holding of reserves in funds accounts, net-settlement services, and more, including advances at the discount window.

Central banks are facing the same powerful forces as commercial banks and investment banks -- dramatic advances in automated data processing and telecommunications technology. Of course, we have been affected by and have used these forces extensively in the past. But recently they have caused us to focus on our infrastructures. Over the past several months, every central bank I have visited is looking at its physical infrastructure and its organization to ensure that it is operating in an efficient, low-cost, and safe and sound manner.

In the face of the many exciting changes in the world of banking and payments, central banks, as other good managers, are devising and revising their strategic plans for their services. These payments services are like supertankers. They cannot turn sharply. All turns and maneuvers must be planned in advance. While their cargo is not hazardous, it is valuable; therefore, reliability, speed, and security are key factors. I want to stress, however, that central banks can be innovative and creative in the approaches they take to reviewing their own role in the payments system. I would like to underscore this point by sharing some examples where I think central banks have, in fact, taken a leading role in fostering change.

**B. TARGET Fedwire, and RTGS Linkages.**

One important example that I am sure that many of you are very familiar with is the proposed Target system over which Euros will be transferred. The European Union central banks and the European Monetary Institute have taken a leading role in identifying the changes that need to be made in national payment and settlement systems as well as the steps needed to ensure that individual central banks and their credit-institution or bank customers will be able to connect to Target. The central bank discussions and reports that have and will continue to surround these efforts are critical to ensuring that these changes are managed effectively and efficiently. What is especially interesting to me about Target is that it demonstrates the possibility of making major changes in existing payment arrangements without a radical shift in the respective roles of these central banks and commercial banks.

Target, as I understand it, will link European Union commercial banks with their central banks and link those central banks together. In many ways, that is similar to how Fedwire operates. A transfer from Chase to Bank of America involves a transfer from Chase to the Federal Reserve Bank of New York to the Federal Reserve Bank of San Francisco for credit to the account of Bank of America.

As you may know, in the United States, we will finally allow interstate branch banking in 1997. This has forced the Reserve Banks to consider the account relationship with these interstate banks. We have decided that each bank will have an account with only one Reserve Bank. Therefore, if Bank of America has a branch in New York and Chase has a branch in San Francisco, the debit will be made to Chase's account with the New York Reserve Bank, and the credit will be made to Bank of America's account with the San Francisco Reserve Bank. This arrangement should allow each Reserve Bank to better manage its payments system risk and access to the discount window by a depository institution, providing another example where central banks are helping the private sector manage change.

One issue I am sometimes asked about in this area is the possibility of linking RTGS systems operating in different currency denominations. I am not aware of linkages of RTGS systems involving different currencies, although I have heard that some central banks may have been working toward such an arrangement. The Federal Reserve is not doing so.

**C. Improved RTGS Service.**

One of the things I have learned in the past year and a half since I have assumed my present position is that we cannot just sit back and rely on these RTGS systems to serve us adequately in the years ahead. We must look to improvements in these services.

One of the things we must do better is measuring our performance. That is not to say that I think we have not been doing a good job. But, to date, our measures have all been internally oriented. We have a new financial services management structure. I serve as the Product Director for Wholesale Payments -- Fedwire transfer of funds and transfer of book-entry securities and net settlement. In 1997, we will organize private-sector advisory groups and will ask those groups to tell us what measures of our performance are meaningful to them. All I can say to this is: "It's about time."

We should be thinking about other RTGS services. For example, should we offer RTGS payment windows, say for payments that would be made at a stated time, for example, 3:00 p.m.? We are open to new ideas to enhancing our services. If you have any suggestions, please do not hesitate to send me a note.

**D. Twenty-Four Hour Fedwire.**

One suggestion that some have made is to operate a twenty-four hour Fedwire. We do not now have plans in place for a 24-hour Fedwire, but even if we do not accept transfer instructions around the clock, there may be reasons to run our operations on a 24-hour basis, as some in the private sector do now. One issue that will come up if we run a 24-hour payments system, however, is the need to consider how to deal with the concept of the banking day.

We are now addressing some of these issues as we move to early Fedwire in 1997. During late fourth quarter of 1997, Fedwire will open at 12:30 a.m. That will be 9:30 p.m. San Francisco time the previous day. Today will be yesterday in San Francisco. This has caused us to think about the Federal Reserve banking day. A transfer of funds on the books of the San Francisco Reserve Bank after 9:30 p.m. will be deemed to have occurred on the next banking day.

#### E. Foreign Exchange Settlement Risk.

Central banks have also been actively working to achieve progress and reduce risks associated with foreign exchange settlements. These efforts have been important in spurring efforts by the private sector, which in turn has put forces to work that will likely have a material impact on national RTGS systems. These forces are FX Net, ECHO, the proposed Multinet bank, and the Group of 20's continuous linked settlements proposal. Through the use of netting, which the central banking community has consistently supported, the number and amounts of payments passing through large-value systems could decrease significantly. That could affect the unit cost of payments over large-value systems, be it an RTGS or net-settlement system. To me, this is a situation where the reduction in risk to the financial system from the better management of foreign exchange settlement risk greatly outweighs any concerns about the impact on the efficiency of a payments system. The priorities are clear.

#### G. Book-Entry Securities Law.

Central banks have also been important supporters of needed legal changes in securities laws. For example, it may be of interest to you to note that, in the United States, we have revised our commercial law governing securities transfers to better address issues related to the custody and transfer of book-entry securities. That law is Article 8 of the Uniform Commercial Code. The latest revisions to the Code must be adopted by each of the 50 States. These changes are intended to clarify some ambiguities in the earlier Article which governs both definitive and book-entry securities. These new revisions show that automated book-entry securities systems are not merely automated versions of the manual record-keeping systems used to track the transfer of definitive securities. Maintaining securities in book-entry form and the automated system have resulted in changes in the relationships among those in the tiers of holders. What is also interesting here is that the Federal Government has incorporated the new Article 8 by reference to govern the custody and transfer of Treasury book-entry securities. We see the Federal Government and the 50 States moving voluntarily to a uniform legal system, necessary for the efficient operation of a national market.

## II. ACHIEVING PAYMENT SYSTEM GOALS VIA MULTIPLE APPROACHES

I hope that these examples have helped persuade you that central banks are taking an active leadership role in reviewing their own services and in helping to initiate needed changes in the private sector as well. I also want to assure you that central banks need not take a rigid or uniform approach to the issues we face in the payment and settlement arena. Indeed, I am constantly amazed at the number of different alternatives and diversity of solutions that have been employed to help meet the particular characteristics of different national markets.

#### A. RTGS and Net Settlement Systems.

One issue that illustrates this point, although it has been somewhat dormant recently in the United States, is whether a nation can or should have both a real-time gross-settlement payments system and a net-settlement payment system for large-value payments. One assumption here is that the net-settlement payment system will be private. A real-time gross-settlement payment system can be operated by the central bank or by the private sector in partnership with the central bank. This partnership could be regarded as involving the dynamic debiting and crediting of accounts on the books of the central bank, perhaps with the central bank adding liquidity through intra-day repurchase agreements or daylight overdrafts.

In the United States, we are quite comfortable with a large-value, real-time gross-settlement system operated by the central bank and a large-value net-settlement system operated by the New York Clearing House Association. There are several reasons for this. The most significant of these is that CHIPS is overseen by a top-tier committee consisting of the chief executive officers of the clearing house banks. These senior bankers have taken a keen interest in the reliability and security of CHIPS. They have also devoted a substantial amount of attention to how CHIPS participants could better manage their credit risk. While they did this in response to concerns expressed by the central bank, they identified solutions which we would have never come up with.

There is nothing inherently unsafe and unsound about a large-value, net-settlement payment system. Each system must be evaluated on its own merits. The Lamfalussy standards set out by the G10 central banks in 1990 can be quite helpful in this regard. As a central banker, I have been encouraged by private sector efforts to meet or exceed these standards, in particular, in the case of CHIPS.

Settlement finality is assured for CHIPS through the ASO -- Additional Settlement Obligation. In effect, each participant that has the potential to be a net creditor, vis-a-vis a failed participant, must put up collateral to assure that CHIPS settles. The way I look at it, the net creditor must be prepared to pay itself its *pro rata* shortfall for the settlement if another participant fails. To ensure that it is able to do that, the net creditor must put up collateral. The New York Clearing House has taken steps to ensure that sufficient collateral is maintained by each participant to cover the failure of the two largest CHIPS participants.

#### B. Intra day Liquidity.

Another area where central banks have adopted multiple approaches to an issue is the case of providing intra-day liquidity in RTGS systems. Collateral is, in effect, required by a number of central banks. In some cases, this is being done through the use of intra-day repurchase agreements. The central bank will provide liquidity by acquiring securities in the morning and selling them back at the close of business.

On the other hand, the Federal Reserve Banks may well be the only central banks that provide daylight overdraft credit. That is not to say that credit risk is not being managed. At the Federal Reserve Bank of New York, you will find credit and other risk-control arrangements in place not dissimilar to those you do or should have in place. Banks have limits set on their daylight overdrafts; some must secure any overdrafts; and others are permitted no overdrafts, either secured or unsecured. I believe that the Reserve Banks are well suited to manage the credit risk of some 9,000 depository institutions. We benefit from access to bank supervisory information. Let me make it clear that bank examiners do not routinely share information obtained from banks with Reserve Bank service providers. As a general rule, we have established a Chinese Wall between the two. But there is a practical exception; if a bank is in serious financial condition, that information will be shared with the Reserve Bank credit-risk manager. The Reserve Banks also charge a fee, 15 basis points, for daylight overdrafts. This fee represents the use of a market force -- pricing -- to influence behavior. As a central banker, I am most concerned that credit risks and liquidity risks associated with payments are well managed. The form and structure for this does not necessarily have to take a rigidly uniform approach. Rather, what is important is that the operators of these systems, including central banks, understand the details of their markets and their systems well enough to design approaches that meet the goals of safe and efficient operation.

#### C. Book-Entry RTGS versus Net Settlement.

One area where the possibility of different systems does not appear to be a concern is the question of whether both RTGS and net-settlement

book-entry systems can or should co-exist in a country. A number of countries have RTGS systems for the transfer and settlement of national government securities. Equity securities and private debt securities are often transferred and settled over net-settlement systems. The securities of a number of national governments are also transferred and settled over what we can call multi-national settlement systems -- namely Cedel and Euroclear.

Why is there no RTGS/net settlement debate here? I believe this results from the fact that these are delivery-against-payment ("DVP") systems. In DVP systems, credit risk can be better managed and reduced by ensuring that each party to the transfer has either the funds or the securities, involved in the transaction, or that securities are pledged to secure final funds payment. Of course, there are a variety of possible modes for DVP, depending on when final transfer of the funds and securities takes place. In some cases, such as Fedwire, final transfer of each occurs simultaneously and continuously throughout the day on a gross-basis. In other DVP systems, payments and/or securities transfers are netted at the end of the day. Each of these approaches has its own set of strengths and drawbacks, but each attempts in its own way to achieve the risk-reducing goal of DVP.

In this context, however, I do want to note the central bank concern that revocation on the settlement date must not be the means by which settlement finality is attained. In the United States, for example, we require that the DVP system has confirmed liquidity arrangements in place to assure settlement. This means that the system must maintain confirmed credit lines with one or more banks. Securities held by the DVP system would be pledged to secure that credit.

With assured settlement on the settlement date, redeliveries to surviving counterparties and assessment of losses can occur on the following day. This should provide system participants the opportunity to prepare. The overall effect should be to reduce the potential for systemic risk.

### **III. CENTRAL BANKS' CONTRIBUTION TO THE PAYMENT SYSTEM**

Having talked about the willingness of central banks to think creatively about their role in the payments system, as well as their willingness to entertain multiple approaches to the issues, I would like to underscore my view that central bank involvement in payments and settlements is a highly positive development for the financial system. This does not mean that the central bank has to be the operator of the system to deliver these benefits. To the contrary, what is particularly interesting about our role is that it encompasses a number of different aspects; sometimes as a direct provider of services, sometimes as a supervisor helping to make the system safer, and sometimes as a catalyst for efficiency-enhancing improvements that benefit all.

#### **A. Book-Entry Securities.**

In the United States, our Fedwire book-entry security transfer system, a delivery-against-payment system, is a prime example of a unique service that we offer directly. Fedwire-book entry is a real-time, gross-settlement system in which each security is separately settled across the central bank's books, which incidentally gives rise to the largest portion of daylight overdrafts on Fedwire. This arrangement has the benefit of intra-day certainty. For those banks that have sizable daylight overdrafts, the Reserve Bank takes a security interest, in the same way that a clearing bank takes a security interest in securities being delivered to a dealer. By the end of the day, the dealer will have transferred those securities out against payments thus eliminating the dealer's daylight overdraft on the bank's books and the bank's daylight overdraft on the Reserve Bank's books. This system works quite well indeed.

Its volume has been adversely affected by a clearing arrangement we actively supported -- the Government Securities Clearing Corporation -- which nets outright trades in Treasury securities, "when-issued" trades, and some repurchase agreement transactions. The point here is that, while we are business driven, we do not take our eye off of the broader public policy issues. While Fedwire volume has experienced some adverse impact from GSCC, the financial markets as a whole are better off.

We are also beginning to think about improvements to the system. We now handle Treasury, certain Federal agency, Government Sponsored Enterprise, and international organization securities. Should we broaden the type of instruments handled on Fedwire? Should we offer a net-settlement system in addition to an RTGS system for book-entry securities? These are not questions which will be answered quickly. Do not expect any changes of this sort in the near term. I raise them to point out that we are not wearing blinders when thinking about these services. And the mere fact that we are thinking about them does not mean that we are actively working toward implementing them. Again, we will need to consult with our customers to see whether there are, in their view, more pressing issues for us to consider.

#### **B CHIPS and Legal Issues**

I have already talked a little about CHIPS. I want to return to it here to illustrate a case in which the central bank worked with the private sector to enhance the legal environment in which CHIPS operates. When the attorneys for the New York Clearing House did their analysis of the validity of CHIPS settlement, they came up with a legal opinion that provided a high degree of certainty. However, considering the value handled over that system, in excess of \$1 trillion each day, it seemed prudent to go even further if possible. We worked with counsel to the Clearing House to prepare a new Federal statute that would provide an even higher degree of certainty for net-settlement arrangements, including both those that do and those that do not rely on a central counterparty. We found legislators receptive to proposals that help reduce systemic risk.

A somewhat similar example can be found in the European Commission's May 30, 1996 proposal for a European Parliament and Council Directive on Settlement Finality and Collateral Security. In this document, the Commission concluded that, in order to establish an effective cross-border payment system (which is essential for the functioning of the Single Market), modernization of systems is required. That proposed directive would be similar to the FDICIA legislation in the United States, except that FDICIA is not limited to payment netting. The key point here is the ability of authorities, including central banks, to help achieve modernizations in important parts of the legal infrastructure of payment systems.

#### **C. Collateral**

Another area where I believe central banks have a helpful role to play are the issues related to collateral. Collateral is often looked at as the magic bullet that can cure all payment and settlement ills. Collateral has been used for years in futures clearing corporations and DVP systems. Collateral is increasingly being used in over-the-counter transactions, such as swaps, involving wholesale market participants. For example, if the mark-to-market exposure of Bank A to Bank B exceeds an agreed amount, say \$10 million, Bank A would be required by the agreement to post collateral to cover the exposure in excess of \$10 million.

One matter that should have already been reviewed is the validity of collateral arrangements within each country. That is, are arrangements in place in each country for the pledge of collateral by payment and settlement participants? I am not sure that this has been done in all cases. These arrangements would include domestic banks and branches of foreign banks.

When cross-border participants are involved, the legal issues become more complex. Many of these issues are conflicts of law issues. There are other complex issues relating to the bankruptcy of a multinational bank that need to be addressed. The Group of 30 has a study of this issue underway.

One point that I would like to leave with you on this topic is that collateral is not a cure-all. In each time zone within which a multinational bank participates, it may be pledging intra-day a substantial amount of assets to back its participation in payment and settlement systems. Does the bank's end-of-day balance sheet adequately reflect the risk incurred by its creditors if the bank closes before these systems finally settle and

collateral is returned? What will be left for general creditors after these payment-and-settlement systems secured creditors liquidate their collateral? Does a given bank have sufficient available or free collateral to pledge to each of these payment and settlement systems?

#### D. Encouraging an Integrated View.

In addition to our role in identifying important issues and encouraging work toward solutions, central banks also have a role to play in ensuring that participants in the payments system take the associated risks seriously. I would like to emphasize one concern here. We continue to see a disconnect between the front and back offices of many firms. I am not talking about the need for separation of functions, but instead about differences in view between those offices.

For example, regarding our proposals to expand Fedwire hours, we have heard statements like: "We will not make all of the system changes needed to support the five trades that will be made" or "we are not going to put on a second shift to support those five trades." Yet we suspect that senior policy-makers in these organizations support expanded hours. In some organizations, we do not see a consensus on how these issues should be addressed or these new operations supported.

As I said earlier, arrangements to address foreign exchange settlement risk such as FXnet, ECHO, the proposed Multinet Bank, as well as continuous linked settlement have the potential to reduce the volume in national large-value payment systems. Although the potential for change is high, so is the potential benefit. The foreign-exchange losses incurred in bank failures since the Herstatt failure would have gone a long way to paying for a system that eliminates foreign-exchange settlement risk.

#### **IV. CONCLUSION**

As you all are well aware, central bankers are concerned about systemic risk and moral hazard risk. That is, systemic risk can be reduced by central bank attention. Many of our efforts over the past decade have been to impress upon banks the need for them to address systemic risk. I think that the banking system has responded to this in a positive way. We note more banks are calculating or estimating their risk associated with payment and settlement systems and products. The reduction of systemic risk may result in benefits in the form of lower regulatory capital charges or smaller balance sheets. We also note that directors and senior management are responding to their responsibilities to ensure that a single extraneous event does not sink their firm.

While these are all very positive developments, there is no room for complacency. We must build on the accomplishments of the past and work together to continue improving the efficiency and safety of the world's payment and settlement systems. In doing so, it is essential that we approach the issues creatively and with an open mind. This must be a priority for central banks as well as for other participants in the payment system.

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