

**Developments on the Management of  
Foreign Exchange Settlement Risk**

Remarks by

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I am delighted to be here with you to discuss some of the latest developments in the management of foreign-exchange settlement risk. Both Jill Considine and I will be discussing systemic issues in the payments system. I will focus on the clearance and settlement of foreign-exchange transactions. I will review developments in this area from a very broad perspective, spending some time on the events which have brought us to the point we have now reached and then focus on the work now being done by commercial bankers, bank supervisors, and central bankers to have foreign-exchange settlement risk managed better.

Foreign exchange settlement risk has been with us for some time. What is that risk? Simply stated, it is risk that a bank or other market participant incurs from the mismatch in the timing and finality of payments being made in two separate payment systems. In its March 1996 report *Settlement Risk In Foreign Exchange Transactions*, the Committee on Payment and Settlement Systems of the G-10 central banks defined "foreign exchange settlement risk" as follows: "the risk that one party to a foreign exchange transaction will pay the currency it sold but not receive the currency it bought." A foreign exchange transaction involves the sale of "exchange" denominated in one currency and the purchase of "exchange" denominated in the currency of another. You certainly should have noted that I used the term "exchange" and not currency. A foreign exchange transaction does not, strictly speaking, involve the sale of a currency. I maintain that I cannot satisfy a foreign exchange transaction by delivering one or more baskets full of currency to you. I must deliver exchange to you -- that is, a balance on the books of a bank of your choosing -- and you will do likewise for me. Exchange is a type of money -- a bank balance -- but not currency.

Foreign exchange settlement risk reflects the fact that the transfers of funds in the two monies of the transaction are not coordinated. I do not receive my purchased exchange in "actually and finally collected" funds but end up paying over my exchange to you. The full amount of each trade is at risk.

An example might be helpful -- a simple spot foreign exchange transaction. On Monday, Bank A (in London) agrees to sell Bank B (in Frankfurt) US\$100 million against French francs 500 million, for value, Wednesday, the conventional settlement date for a spot trade. Bank A instructs its correspondent in New York to debit Bank A's account and transfer US\$100 million to Bank B's New York correspondent for credit to Bank B's account on Wednesday. Bank B instructs its correspondent in Paris to debit Bank B's account and transfer FF 500 million to Bank A's account on the books of its correspondent in Paris. On Wednesday, the French francs will be delivered through the French payments system, *Sagittaire*; the U.S. dollars will be delivered over CHIPS or Fedwire. The correspondent banks will advise their customers of the payments made and received. If an arrangement is in place, a bank can inform its correspondent of what payments to expect; this will permit the correspondent to inform its customer of payments expected but not yet received.

I have asked myself why this custom of uncoordinated deliveries developed in the foreign exchange market and not in other markets. There are a number of commercial transactions where the parties ensure that goods are delivered against payment or securities are delivered against payment. I can only speculate here that, because the foreign exchange market has for many years been principally an interbank market (and I use that phrase very broadly) and the participants in that market typically are quite creditworthy, the participants in the market had not been motivated to create a more prudent settlement mechanism. However, the foreign exchange market has grown markedly in recent years in number of participants and volume. The annual turnover survey results published by the Bank of International Settlements show that the average daily turnover of global exchange markets in spot, outright forward, and foreign exchange swap contracts was estimated at \$1.2 trillion in 1995, up from \$820 billion in April 1992 and \$590 billion in April 1989. In addition, firms other than commercial banks are now active participants in the market.

Foreign exchange settlement risk existed well before the failure of Bankhaus ID Herstatt KGaA on June 26, 1974. But the Herstatt case taught an expensive lesson to a number of institutions. It has been a great motivator, resulting in improvement to the CHIPS system and to other market mechanisms. Both the payers of U.S. dollars and the receivers of Deutsche marks learned hard lessons in the Herstatt case. One of those lessons was the necessity of having a better understanding of the operations of payments systems over which legs of foreign exchange transactions are settled.

In New York, one case centered around a payment by a correspondent over CHIPS to Herstatt's correspondent, the *Delbrueck* case. The originating bank's CHIPS correspondent had released the payment to Herstatt's CHIPS correspondent on the settlement day but after Herstatt was closed. Herstatt was closed between 10:30 am and 11:15 am New York time. Delbrueck's correspondent sent out the payment at 11:36 am. The originating bank, the seller of dollars, requested that the payment be revoked. When its CHIPS correspondent was unable to do so, the respondent sued. The court held that, when the payments message was released over the CHIPS system, it was final and could not be revoked. At that time, CHIPS settled on a clearing house funds basis -- the payments message was released today, and the net settlement was settled on the books of the Federal Reserve Bank of New York on the following day. It is interesting to note that this was not a foreign exchange settlement risk case, Delbrueck had received its Deutsche marks.

In Germany, some of those who made payment in U.S. dollars and received payment in Deutsche marks by check found that those checks drawn on Herstatt were returned unpaid. In London, a correspondent bank had an "on-us" transaction involving the Pound Sterling side of a Deutsche mark/Pound Sterling foreign exchange transaction. The pounds were transferred from Herstatt's account on the books of the London bank to the account of the seller of marks. That on-us transaction gave rise to an overdraft in Herstatt's account on the day it was closed. On the following day, the correspondent reversed the entries to cover the overdraft. The English court held that the transfer of funds was final when the bank decided to make the payment and entered the payment into its data-processing system. I have also encountered post-Herstatt risk. BCCI was closed on a Friday; one bank on the following Monday made the dollar payment to BCCI's account when it had not received payment for the yen side of the trade earlier in that day in Tokyo. Perhaps, the bank had stored the payments instruction in its system and then had forgotten it.

Thus, the Herstatt case served to stimulate a great deal of change in payments systems. As a result of Herstatt and the failure of a number of Sindona owned or controlled banks, including Franklin National Bank, the New York Clearing House moved to a more prudent settlement, using a settlement account on the books of the Federal Reserve Bank of New York. Then CHIPS was moved to a same-day settlement basis.

Further moves resulted in the Clearing House-set net-debit caps and the receiving bank- set net-credit caps. Finally, the use of collateral to ensure settlement of the additional settlement obligation was implemented. I am sure that Jill Considine will update you on other CHIPS developments.

In the foreign exchange market, volume continued to grow. Participants in the market learned that the failure of a participant was possible. In addition, access to the market had broadened. Corporate customers played a greater role in the functioning of the market. This is an over-the-counter market that functioned well with little documentation and large measure of professionalism. Those professionals recognized that more needed to be done to ensure the safe and sound functioning of their marketplace -- a truly cross-border market, operating continuously virtually from 8:00 am Sydney time on Monday to 5:00 pm New York time on Friday.

At the same time, the organized financial futures and options markets blossomed. The over-the-counter market participants are active participants on those exchanges. The over-the-counter market participants saw that they could use some of the techniques used by the clearing houses for those exchanges to manage better their risks.

Documentation started to be used by dealers with customers and finally between dealers. Some customers were required to post collateral against larger exposures. Now dealers require collateral from counterparty dealers with very large exposures. FX Net was started and introduced netting by novation. This was done at same time that bank supervisors started to consider whether to impose a capital charge for credit risk in foreign exchange transactions -- that is, the risk that a profitable trade will be lost if my counterparty fails. There was also concern with cherry picking -- that is, the receiver of the failed participant requiring performance of profitable trades and disaffirming unprofitable trades. In September 1974, that is precisely what the FDIC threatened to do with the foreign exchange book of Franklin National Bank. As a result, the Federal Reserve Bank of New York took over that book, as well as collateral to protect against losses.

The next development was the ISDA master agreement, which used close-out netting, instead of novation netting. Then, the joint efforts of the British Bankers Association and the Foreign Exchange Committee (later joined by the Japanese Foreign Exchange Committee) developed master agreements for foreign exchange spot, forward, and options transactions. These agreements also use close out netting but also provide for novation netting and payments netting. The ISDA and these other efforts brought to the fore the problem of netting cross border.

The Basle Supervisors Committee in its Capital Accord decided to permit banks to calculate the credit risk arising out of forward foreign exchange transactions on a net basis provided these banks satisfied the criteria for netting set out in the Capital Accord. Those criteria were developed from the *Lamfalussy* report which the G-10 central banks follow in determining whether a cross-border clearance or settlement system is safe and sound.

The next efforts to surface were the ECHO and the Multinet systems. ECHO is operating; the relevant central banks determined that it satisfied the *Lamfalussy* standards. Multinet is still in the process of obtaining the necessary approvals to commence operation. These are systems that will match, net, and settle foreign exchange trades. They operate differently, especially in the way they manage risk and in their legal structures, but the results are fairly similar. By constantly netting trades, each participant will pay or receive a single amount in each currency. While participants post collateral against credit risk resulting from their foreign exchange trades, a greater amount of collateral is required by these systems to ensure the settlement of those trades.

One common facet of systems such as ECHO and Multinet is they involve a degree of loss sharing. Loss sharing has not been a major feature of the over-the-counter market. That is, each participant assumed the risk of assessing its counterparties credit risk and acting accordingly. Participants were not without protection. In situations where one counterparty felt insecure about performance by the other, the questionable counterparty would be informed. If it could not allay the concerns of the inquisitor, the inquisitor could insist that the conventional rules for delivery -- the party paying the exchange in the earlier time zones pays first -- be reversed. Thus, the weaker party might have to pay U.S. dollars the day before the yen would be delivered by the finally stronger counterparty. This, of course, can give rise to liquidity pressures on the part of the weakened firm.

The New York Foreign Exchange Committee undertook a review of foreign exchange settlement risk. The Committee took a step back and looked at this risk with a telescope rather than a microscope. It determined that the magnitude of the risk was larger than had been realized by many market participants. The Committee said that a bank's actual exposure -- the amount at risk -- when settling a foreign exchange trade equals the full amount of the currency purchased and lasts from the time a payment instruction for the currency sold can no longer be canceled unilaterally until the time the currency purchased is received with finality. Thus, foreign exchange settlement risk could extend over a five-day period and peak on the third day.

The latest development and one just beginning to receive attention in the press is the effort of the Group of 20. These 19 multinational banks have been investigating methods for the elimination of foreign exchange settlement risk. That Group had been reviewing three methods for reducing or eliminating foreign exchange settlement risk. The first I characterize as a double escrow arrangement. Each counterparty would pay the amount it owed for a foreign exchange transaction into an escrow account. A common agent would have a list of trades and the amounts to be paid. It would compare the amounts paid into the escrow accounts to determine if the proper amounts had been paid. If there were a match, the payments would be released simultaneously in same-day, finally settled funds. This system would be quite complex. It would not have been particularly efficient.

A second system would have involved net settlement of foreign exchange trades. In order to ensure settlement, the counterparties would be required to post collateral. There was some concern that this system could give rise to liquidity pressures on some participants.

The third system in its original form involves the creation of an entity, which could take the form of a bank. The counterparties would maintain accounts in the relevant currencies at that entity. Payments would be made from and paid to those accounts in a continuous linked process designed to minimize the system's liquidity and collateral needs. The Group of 20 is now at work defining more fully the characteristics of this third system.

The final development I would like to raise today is the publication by the Bank for International Settlements of a report of a task force of the Payments Committee of the G-10 central bank governors. This report, copies of which are being made available to you at this session, sets out the remaining concerns of the G-10 central banks about foreign exchange settlement risk. The report sets out a strategy for the G-10 central bank governors.

First, individual banks need to take steps to better manage their foreign exchange settlement exposures. There is room for improvement in back-office payments processing, correspondent banking arrangements, netting capabilities, and risk management controls. Taking such steps will permit banks to (i) measure their foreign exchange exposures properly, (ii) apply appropriate credit-control processes to foreign exchange settlement exposures, and (iii) reduce excessive foreign exchange settlement exposures for a given level of trading.

Second, industry groups need to develop risk-reducing multi-currency services. Such services could include bilateral netting, multilateral netting, and multi-currency settlement.

Finally, central banks need to take steps to induce rapid private sector progress. Much time has been spent talking about foreign exchange settlement risk. The time for talk is over. Personally, I do not believe that there is a need to establish a capital charge for foreign exchange settlement risk. Instead, I hope that commercial banks will be in a position to manage that risk through better internal controls and the types of arrangements I have just discussed.

One major issue that commercial banks and central banks have had to come to terms with over the years is the extent to which the banking system should address systemic risk. I will define systemic risk as the risk that an event which could bring markets or clearing and settlement systems to a halt or cause the failure of additional market participants. Systemic risk events have a low probability of occurrence but their costs are high. A systemic-risk event could effect the real economy if losses were great enough. A cost/benefit analysis is difficult but must be done, if only on an approximate basis. How much can the private sector be expected to expend to address this risk? At what point should the government step in and resolve the problem? With respect to the latter question, what I do know is that that point should come much later not sooner. It would be best if the private sector could address the problem. From my vantage point, we are pleased with efforts of commercial banks to date. There are costs to the ECHO, Multinet, and Group of 20 efforts. The major multinational banks seem to have reached a consensus that, at least this one systemic risk -- foreign exchange settlement risk -- must be better managed by market participants.

Central banks are watching these efforts, providing assistance where appropriate. At the Federal Reserve Bank of New York, we believe that market participants are the ones best suited to define the ways to address foreign exchange settlement risk. We do not favor any one approach over the other. We simply want to make sure that any system devised is rigorous enough to deal with the risk. We should not wait until the effort is completed before we make any judgment. We should be prepared to provide formal and informal advice at the request of those developing the system as they progress. That is, we should be able to define "showstoppers." Thus, we do not quite have a partnership, but an alliance. We have a common enemy. But the most important and impressive fact is that the multinational commercial banks are tackling foreign exchange settlement risk in force. At the Federal Reserve Bank of New York, when we celebrate, no that is not quite the right term, commemorate the 25th anniversary of Herstatt's failure, we will also be able to see that the solutions to that problem are at hand. There also is a role for the bank supervisors. Bank supervisors will have a keen interest in seeing that banks subject to their jurisdictions are hard at work to manage foreign exchange settlement risk better. The bank supervisors can be expected to review the progress banks are making through examinations and monitoring developments.

We should not get too relaxed about the future. As I am sure you suspect, there are other issues which need to be addressed. Key enhancements need to be made to national payments systems. Another question is whether spot transactions should settle on a next-day or a same-day basis. I could go on this vein but will not do so. It suffices to say that we as central bankers and you as commercial bankers active in foreign exchange have a responsibility to ensure that the foreign exchange market continues on its path of safety and soundness. We should not lose sight of the fact that these foreign exchange activities support our nation's foreign trade activities. The prudential activities I have discussed above benefit not only bank participants in this market but all participants.

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