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Large-Value Payment Systems: What Have We Learned?

remarks of

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LARGE-VALUE PAYMENT SYSTEMS: WHAT HAVE WE LEARNED?

The organizers of this Payment Systems International Conference have asked if we are "on the right track" in large-value payment system policy and design. Today I would like to step back from that immediate issue and ask what we have learned over the past 15 years and how we should approach the future.

I would first like to discuss an emerging consensus on policy toward large-value payment systems. I will then make a few remarks about the two major types of large-value systems and the choice between them. Finally, I would like to note the continuing growth of settlement risks, particularly in the foreign exchange markets, and encourage the international community to move forward with various efforts to reduce these risks. I believe that the growing consensus in analysis and policy, along with technological developments, make it possible to address seriously the problem of settlement risk. However, it will take continuing effort by many institutions to accomplish this goal.

I. An emerging consensus on policy principles.

I believe that the past 15 years have seen an emerging consensus on policy toward large-value payment systems. There has been a fruitful dialogue between commercial bankers and central bankers, and within the central banking community, on this subject. In the central banking arena, the publication of the Lamfalussy Report on netting in 1990, along with recent work

by the European Community central banks on payment system policy, have been powerful catalysts. I would like to share with you my own interpretation of the emerging consensus in the context of the development of five important policy principles that center on: (1) safety and soundness, (2) technical efficiency, (3) access to the payment system, (4) compatibility of large-value systems with the monetary regime, and, to a growing degree, (5) international compatibility of large-value payment systems.

Safety and soundness. It may not seem controversial today to say that safety and soundness are crucial to the design and operation of large-value transfer systems. Not long ago, however, safety and soundness concerns were almost always subordinated to the efficiency of payment processing. This approach to payment system design led to large and unmonitored daylight overdrafts in accounts at central banks that operate their own large-value payment systems. This approach also led to multilateral netting systems, using designs based on 19th century check clearing houses, that relied on the "unwinding" of payments as the ultimate remedy for settlement failures.

Large-value payment systems are a core part of the monetary institutions in every country and in the international financial system. As a result, these payment systems must be stronger than their individual member banks, if the systems are to provide a stable foundation for the monetary and financial system. Experience has demonstrated that in times of financial stress large-value payment systems must be able to accommodate

potentially huge transfers of money without interruption, and inspire market confidence that the payment systems will work as planned.

Some in the private-sector question the costs of installing large-value systems that will help secure financial stability during financial difficulties. I would urge that one of the lessons of the past 15 years is that the costs of creating and running payment systems must be weighed against the potential costs of systemic instability in troubled times, not just against operational alternatives in tranquil times.

I am pleased to note that last week the Federal Reserve Board gave final approval to another significant step to deal with payment system risk. Among other things, fees will be charged for daylight overdrafts in accounts at the Federal Reserve, beginning in April, 1994. This change will reduce the provision of subsidized daylight credit to the banking sector through the payment mechanism. Most importantly, the fees should help stimulate market-based responses to managing daylight payment flows and payment system risks, leading to increased safety and soundness for the payment system. After monitoring and assessing the effects of these changes, the Federal Reserve will need to be prepared to take further steps to stimulate the market-based pricing of daylight credit.

Technical efficiency. Turning to the next principle, the technical efficiency of large-value payment systems is also of primary importance. Trading volumes, along with the number of

time-critical and complex money settlements, have grown dramatically with the explosion of domestic and international financial market activity in free global capital markets. Banks have adopted increasingly sophisticated money management systems that rely upon their ability to transfer and receive large sums of money rapidly and with confidence. These high volume and time-critical settlements throughout the financial markets have come to depend on the technical efficiency and integrity of the computing and telecommunications systems that underpin the large-value transfer systems.

In surveying technical developments over the past 15 years, I am struck by a major trend: the technical possibilities of data processing and communications have threatened to outrun the national legal and banking arrangements that are the institutional foundation on which payment systems have traditionally been built. Political boundaries and traditional banking markets have little relevance to the processing costs of modern electronics. The challenge is to find ways to take advantage of modern technologies and to recognize that old institutional arrangements may need to change, or be changed, to reflect a new calculus of costs.

Access to payment systems. One of the most vexing questions confronting payments experts is: Who should have direct access to a payment system? The debate usually rages between banks and non-banks and between domestic and foreign-based banks. Often at the heart of this problem is the issue of who should have direct

access to central bank services and credit, and what are the implications for the distribution of risk and credit in an economy. Clearly there must be limits on access to central bank credit if we are to avoid the concentration of all credit activity at central banks and to maintain a viable privately owned banking sector to intermediate credit in our economies. The issue is where to draw a line during a time when the boundaries of banking are being eroded by technology, competition, and differential reserve requirement burdens.

I believe that central banks may contribute to the problem of defining who has access to a payment system when they provide large amounts of credit through their own large-value transfer systems. The result is that discussions of access to the payment system become enmeshed in issues of central bank risk and credit policy.

The challenge ahead is to find ways to cut through some of these entanglements and to encourage the efficient provision of rapid and final money transfer services, while avoiding the provision of large amounts of subsidized central bank credit to the private sector. The challenge is also to ensure that competitive conditions in the money-transfer business remain fair.

Compatibility with the monetary regime. A fundamental duty of every central bank is to execute monetary policy, usually by influencing the rate and terms for central bank money -- bank reserves. Large-value payment systems are the key mechanisms for

rapidly transferring these reserves. Thus it is important for large-value systems to be compatible with the monetary regimes of their corresponding central banks.

For example, if a central bank imposes high reserve requirements on the banking sector, balances held at the central bank tend to be large. A central bank might successfully run a large-value system for transferring these balances with little or no provision of central bank credit. The incentive for the banking system to use such a transfer system would be great, since reserve balances that might remain idle during the day could be put to use, with little impact on the execution of monetary policy. An effective monetary regime and an efficient large-value system are compatible.

In a different example, if a central bank imposes no reserve requirements on the banking system, and pays no interest on reserves, privately determined balances held at the central bank would tend to be small. In efforts to economize further on reserves, banks would have incentives to intensify their use of highly automated large-value payment systems, putting further downward pressure on the demand for reserves, potentially causing adjustment problems for the execution of monetary policy. Thus the large-value payment system, in conjunction with a zero interest rate paid on reserves, can work to complicate the execution of policy.

In a third example, the central bank could pay interest on reserves. I should note that the Federal Reserve has endorsed

the concept of paying interest on required reserve balances, but some have expressed reservations about paying interest on excess reserves because of potential effects on the execution of monetary policy. For purposes of analysis, however, it is important that the payment of interest on reserves could lead to a much larger base of reserves held voluntarily at central banks. In this case, large-value payment systems would be able to run more quickly and efficiently on the basis of sound banking principles: funds must be in an account at a central bank before payment transfers will be honored. Payment queues and other devices used to ration access to a small base of central bank money or credit would not be needed, or at least, would be needed to a much lesser degree than currently.

Before such a regime could be adopted, both monetary procedure and governmental budget considerations would need to be addressed fully. Again, the main point is that the monetary regime and payment system design need to be compatible with one another. I would also suggest that market participants and policy makers should not mechanically subordinate payment system design to a particular existing monetary policy regime.

Compatibility with payment systems from other countries. It has been well understood since the failure of the Herstatt Bank in 1974 that the settlement of foreign exchange contracts poses special problems of timing and control for the international banking system. By Herstatt risk I mean, of course, the risk that one leg of a foreign exchange transaction will be settled

with finality, but that there will be a default in the settlement of the other leg of the currency transaction. The loss involved in such a default is potentially the full principal amount of the first payment to be settled, which cannot be retrieved. To date, some progress has been made to solve these problems, largely involving improved risk controls within commercial banks. I will discuss the issue of settlement risk a little later.

At this point, I would simply like to urge as a general principle that payment systems in a number of countries may have to become more compatible with one another if further progress is to be made in reducing settlement risks in the foreign exchange markets. Compatibility presumably extends to key characteristics of payment systems such as the timing of finality of payment. In the future, compatibility may also need to extend to the hours of payment system operation in different countries, and even to operational linkages of some type between payment systems. Several ideas have been discussed in the past few years.

II. Large-value payment systems: the major alternatives

I would now like to turn to the two major types of large-value transfer systems that seem to be emerging today. On the one hand, there are continuous gross settlement systems run by central banks that transfer central bank money, often in real-time. These systems exist in many of the G-10 countries. On the other hand, there are multilateral netting systems that exchange payment messages during a day, perhaps in real-time, but rely on

multilateral net settlement in central bank money at the end of the day. Many countries also have these systems. Some countries have both continuous settlement systems and multilateral netting arrangements.

A basic question is: Which type of system is best for a country or region that desires safety, efficiency, and the other objectives contained in the emerging consensus on policy principles? I believe the answer to this question depends on a comparison of costs and efficiency when both types of systems are held to the same standard requiring that they produce minimal systemic risks. Clearly the safety and soundness standards contained in the Lamfalussy Report on netting schemes are a large step forward in enabling us to make the correct comparisons.

Over the past 15 years we have learned that very sophisticated gross settlement systems can be developed and operated by central banks that allow the rapid and final transfer of central bank money in real-time. As a central banker concerned about the systemic stability of the financial system, I believe that the stability and confidence these systems can provide is crucial.

At the same time, the market has shown that there is significant demand for large-value payment systems based on multilateral netting. As we now know, these systems are often designed to achieve at least three goals. First, multilateral netting allows the banking system to economize on central bank money and credit. The incentives to economize are a reflection

of central bank monetary regimes that limit the payment of interest on reserves and have seen reductions in reserve requirements over time. The incentives also reflect justifiable policy limits on access to both overnight and daylight central bank credit that can be used to finance debts incurred via central bank operated large-value systems. These incentives alone are a powerful motive to set up multilateral netting systems and seem unlikely to disappear in the near future.

Second, multilateral netting, when organized by the private sector, may allow private organizations to bring market-based credit judgements to bear on the process of granting daylight credit to facilitate payment flows. A pre-condition is that participants in these netting systems must be required to bear the full capital costs and rewards for the credit judgements they make. As you know, I have long favored a somewhat different approach, in which explicit daylight interbank credit markets are set up to stimulate transparent market-based daylight credit judgements.

Third, private organizations may be able to deal with questions of access to the payment system, particularly by foreign-based banks, more readily than central banks. This is because central bank decisions, particularly involving cross-border access to a central bank, can become enmeshed, as I noted earlier, in decisions about central bank credit and risk control. Private multilateral netting systems involve decisions about

granting interbank credit that are made every day in the normal course of the international banking business.

I would note here that I do see a role for the antitrust authorities to ensure that the access policies of private clearing groups allow for fair competition in banking. There is always a risk that participants in banking markets, particularly markets closely linked to payments technology, will be tempted to improve their competitive position when possible by limiting direct access to major private payment systems. I believe that considerations of fair competition, along with the need for technological innovation in the design and delivery of banking products, require that temptations to restrict competition within the payments system should be resisted.

In summary, I see the possibility that both continuous gross settlement systems and multilateral netting can be constructed in a way to serve us well. At the same time, if a country were to choose only one large-value system, the goal of establishing a safe and sound system for transferring central bank money would necessarily loom large in that choice.

III. Settlement Risk

I would like to turn for a few moments to the general topic of settlement risk in the financial markets. The studies and statistics of international organizations such as the Bank for International Settlements, the OECD, and the IMF have all documented the growth over the past 15 years in both the number

of financial instruments and markets. In some areas, such as foreign exchange markets and various derivatives markets, growth has been explosive. If you believe, as I do, that private markets are the most efficient way to allocate capital and risk, then you will view the broadening and deepening of financial markets as a sign of economic progress.

At the same time, there is a need to ensure that the expanding variety and volumes of securities, derivatives, and other contracts, including foreign exchange contracts, are settled in a safe, efficient, and timely manner. In the arena of securities clearance, the Group of Thirty recommended in a report several years ago that all securities trades should be settled on the basis of "delivery versus payment," that is, the delivery of a security from a seller to his buyer should be made against a money payment from the buyer of the security to his seller. At the time of the G-30 report, however, all the nuances of the concept of delivery versus payment were not fully understood.

In the past month, the Basle Committee on Payment and Settlement Systems published the results of a thorough study of the concept of delivery versus payment and its application to clearing arrangements for government and other securities in the G-10 countries. I learned two very important lessons from that recent report, entitled "Delivery Versus Payment in Securities Settlement Systems."

The first lesson is that there are actually different models of securities clearing that can legitimately be labelled

delivery versus payment. For example, one model involves the delivery of every security traded against a counter-payment, trade by trade. Another model involves the delivery of netted securities trades against netted money obligations, typically at the end of a day or clearing cycle. Intermediate cases also exist. As discussed in the report, all of these models fit a definition of delivery versus payment based on the logical proposition that the delivery of a security occurs if and only if the delivery of a money payment also takes place.

The second major lesson I learned from the study is that delivery versus payment, by itself, is not a complete answer to the management of settlement risks in most securities and other markets. By far the most common types of delivery versus payment clearing and settlement mechanisms involve the multilateral netting of either securities trades, the corresponding money settlements, or both. In these circumstances, it is the quality of the credit and liquidity risk management features of clearing and settlement systems that determine their safety and soundness, not the mere fact that delivery versus payment takes place.

IV. Cross-border and multi-currency settlement

Cross-border and multi-currency settlements, notably in foreign exchange and related markets, present one of the most difficult issues in international payment system policy. The issue is how to reduce or eliminate Herstatt risk in these markets. During a period that has seen very large fluctuations

in exchange rates, even on a daily basis, along with significant growth in trading volumes, there should be increasing attention to the problem of Herstatt risk and a search for further solutions.

One source of the difficulty in fully addressing Herstatt risk lies in the organization of payment and banking arrangements from a global perspective. In essence, the global economy is organized into national large-value payment systems. The banking institutions that provide clearing and settlement for the foreign exchange markets do not typically participate directly in all, or even most, of the large-value payment systems in the major industrial countries. Thus two banks that enter into a foreign exchange deal are often not in a position to settle the deal directly with each other over the relevant national payment systems. Correspondent banking relationships are used to bridge the gaps between banks that must settle different currencies but do not have direct access to the necessary payment systems. Even when banks do participate directly in different national payment systems, it may be difficult to control precisely the timing of settlements in different currencies.

From a global standpoint, this complex structure for settling currencies drastically reduces the ability of dealers, both banks and non-banks, to control the timing of the settlements of the different legs of their currency contracts. Without some institutional change, it is hard to see how Herstatt risks will be reduced.

In addition, I have long suspected that we may need greater incentives for dealers to take full advantage of any institutional changes, in order to gain large reductions in Herstatt risk. Along these lines, one potentially important incentive could be created if central banks encouraged the establishment of market-based prices for daylight credit. These prices, in turn, would encourage market-based decisions by dealers about the timing of the settlements of the different legs of their currency contracts for particular value dates.

I am encouraged that banking organizations have moved toward the use of bilateral netting to help reduce the settlement risks between institutions that have significant two-way dealings with each other. New law and regulation have supported these efforts. It is important to press further ahead with the proper legal and policy foundations for these bilateral agreements.

I am also encouraged by the projects to set up multilateral netting arrangements and clearing houses for over-the-counter interbank markets, such as the foreign exchange markets. Of course, central bankers view the minimum standards and oversight framework contained in the Lamfalussy Report as a vital working guide for these efforts. I recognize that difficult legal and supervisory issues involving capital requirements for multilateral netting systems must also be satisfactorily addressed. Nevertheless, I encourage perseverance. In the end, it may be possible for these projects to succeed in reducing

settlement risks for the benefit of their members and ultimately for the benefit of the international financial system.

I would like to point out that even if foreign exchange and other contracts are netted, the settlement problems created by the global structure of large-value payment systems and banking arrangements will not yet have been fully addressed. Over the past few years there have been a number of proposals to deal with these structural issues.

One of my own proposals has been to lengthen the hours of operation of the national large-value systems, in order to increase the degree of overlap in operational hours among different financial centers. I might note that last week the Federal Reserve took a step in this direction by proposing to open the Fedwire funds transfer system two hours earlier in the morning --at 6:30 AM Eastern Time.

Other proposals have gone even farther in the direction of creating mechanisms that would tie together the settlement of the different legs of currency contracts. There has been some discussion of delivery versus payment mechanisms in the foreign exchange markets. My colleague Dr. Padoa-Schioppa has made an interesting proposal that central banks should set up a common agent that would be able to perform multi-currency settlements. From a slightly different direction, there have been discussions in the markets about setting up multi-currency mutual funds that could be used for critical settlements. The Basle Committee on

Payment and Settlement Systems has continued to study various ideas for reducing Herstatt risk.

In closing, I would like to reiterate that settlement risks in major markets around the world are international in scope. The risks have been met by a growing consensus in analysis and policy, particularly policy toward large-value payment systems. As I suggested earlier, the technology already exists that can help to reduce settlement risks. However, we must also energetically pursue institutional changes, consistent with strong legal and policy foundations, that will help to secure the reductions in risk promised by our technology.

Thank you.