

Mr. Matsushita discusses payment and settlement systems with regard to current issues in Japan Speech by the Governor of the Bank of Japan, Mr. Yasuo Matsushita, held at the Japan Center for Economic Research on 28/2/97.

I. Introduction

I am greatly honored to have been invited by the Japan Center for Economic Research to address this distinguished audience. I wish to take this opportunity to first briefly discuss the recent monetary and economic conditions, and then address the current issues regarding the payment and settlement systems in Japan.

There have not been many opportunities to discuss payment and settlement on occasions such as this, despite the fact that they are important to all the economic activities of households and firms, and that as a central bank, we are very much involved in the developments in this area. I have not addressed this area partly due to its technical nature, but recently several developments have attracted much attention to the payment and settlement issues in Japan, as in other countries: specifically, pilot projects of electronic money products and the Bank's plans to abolish the designated-time settlement mode to make real-time gross settlement the only way of settlement on the Bank of Japan Financial Network System (BOJ-NET).

The role of the central bank in ensuring a smooth and stable operation of payment and settlement systems has become clearly recognized through the deliberations on the revision of the Bank of Japan Law that have been taking place since last year. The "Report on the Revision of the Bank of Japan Law," released recently by the Financial System Research Council, an advisory committee to the Minister of Finance, states one of the objectives of the Bank of Japan to be "to ensure smooth fund settlement among financial institutions, thereby contributing to the maintenance of an orderly financial system."

I wish therefore to discuss today the current issues regarding the payment and settlement systems in Japan and also refer to the role of the central bank in those systems, bearing in mind the domestic and overseas trend in these areas.

II. Domestic Monetary and Economic Conditions

I would like to start by reviewing the recent economic condition and the thinking behind the Bank's current monetary policy management.

With regard to the domestic economic condition, the Bank of Japan judges that a moderate economic recovery continues and that the recovery is gradually becoming firmer.

A notable change in the economic condition since the latter half of 1996 is that the decline in external demand, which had been a factor constraining the economic recovery, halted in autumn 1996 following the depreciation of the yen. Recently there has been an upward trend in external demand. In addition, inventory adjustment in some raw materials and semiconductor industries had almost reached completion by the end of 1996. As a result, production has started to grow at an accelerating pace, reflecting fully the increase in final demand. Personal consumption continues to grow moderately but steadily, supported by the buoyant sales of passenger cars, and the recovery in business fixed investment is spreading to a wider range of industries and to smaller firms than previously observed, reflecting improvements in corporate sales and profits.

It should be borne in mind that increase in demand ahead of the rise in the consumption tax rate scheduled for fiscal 1997 is contributing to the recent improvement in economic indicators, as in housing investment, and these improvements need to be seen in this light. However, despite a gradual decrease in public-sector investment from the latter half of 1996, the virtuous circle - in which increased production leads to a recovery in business fixed investment and personal consumption through improved corporate profits and employment income - is gradually becoming more apparent. This improvement is encouraging.

In contrast to these recent improvements in economic indicators, the beginning of the year saw a significant fall in stock prices and this, together with the decline in long-term interest rates in the financial markets, indicates that the confidence of the market participants in the economic outlook is still slow to improve.

Various causes can be considered for the market's uncertainty as to future developments in the economy. While the renewed concern over the nonperforming-loan problem of financial institutions may be one important factor, the strong awareness of the effects of the anticipated fiscal tightening in the next fiscal year is also significant.

From spring to summer this year, a temporary slowdown in economic recovery seems inevitable due to a reaction to the boost in demand that is occurring ahead of the rise in the consumption tax rate. However, given the strengthening of the virtuous circle, it is more likely than before that the recovery trend of the economy will be sustained. In addition, stock prices appear to have stabilized. Therefore, in considering whether the economy can overcome the effects of fiscal tightening to sustain the trend of recovery, it is important to examine macro- and micro-economic data, including the economic indicators that will be released in the future, signals from financial markets, and firms' business plans for the next fiscal year.

I will now turn to the environment surrounding domestic prices. The depreciation of the yen has continued since the beginning of the year, and a rise in the consumption tax rate is planned for April. The raising of the tax rate will be passed on to product prices, pushing up the price index accordingly. However, as long as the price hike does not surpass the increase caused by the raising of the consumption tax rate, the price rise will only reflect a single price adjustment, and will not indicate any fundamental change in the situation underlying prices. Therefore it would not be appropriate to formulate monetary policy to counter such superficial changes in price indexes.

From the viewpoint of monetary policy management, that is, the viewpoint of ensuring stable economic development through price stability, the issue of concern is whether the rise in the tax rate will trigger price hikes that take advantage of the increase or will lead to inflationary expectations, which in turn might bring about price rises beyond the immediate effects of the tax rate increase. Whether such a general price increase will occur depends on various factors, including the prevailing domestic supply and demand conditions and consumer confidence. It is thus necessary to pay attention to the inflationary expectations and the possible negative developments, including overreaction by consumers, resulting from the rise in the consumption tax rate, rather than focusing attention on the superficial hikes in prices.

Although the decline in prices began to slow from the end of 1996, there is only a limited possibility that domestic prices will take a clear upward path given that improvement in the supply and demand conditions in the domestic economy is expected to remain moderate for now. However, in view of the accelerating rise in import prices reflecting the yen's depreciation and higher crude oil prices since the latter half of 1996, together with the strengthening of the

recovery in private demand, it remains necessary to pay careful attention to the developments in domestic prices.

In the management of current monetary policy, the Bank of Japan will continue to monitor economic developments closely, placing emphasis on further strengthening the foundation of an economic recovery.

III. Current Issues Regarding the Payment and Settlement Systems in Japan

A. Payment and Settlement Systems in Japan

I would now like to move on to the main theme of today's speech: payment and settlement systems. The expression "payment and settlement systems" may sound somewhat technical and may indeed be unfamiliar to you. In a market economy, however, every economic activity conducted by firms and households - be it production or consumption - is concluded with settlement. Payment and settlement systems, or mechanisms for clearing and settling payments, are therefore used directly or indirectly by every economic entity. People may not be conscious of the functions of the systems when they operate smoothly and efficiently. However, once a problem arises, great difficulties are encountered.

The means of payment used by firms and households vary from cash - that is, banknotes and coins - to checks and bills, funds transfers between bank accounts, and credit cards. When payment is made by cash, settlement is final there and then. However, when payment is made by other means such as checks or bills, the mere handing over of the checks and bills will not complete the settlement of the transaction. When a check is drawn, for example, settlement is final only when the check is collected and the stated amount of money is transferred from the deposit money in the bank account of the payer to the bank account of the payee. If such transfers are not effected between accounts for some reason, for example, there are insufficient funds in the payer's account, the transaction will remain unsettled. When the payer and the payee hold accounts at different banks, interbank settlement is needed, and settlement will be completed only after the corresponding debit and credit entries are made to the current accounts held by each bank with the Bank of Japan.

Although various means of payment are available to firms and households, settlement is ultimately made either by a handing over of cash issued by the Bank of Japan or by a transfer of funds between bank accounts using deposit money, which are liabilities of private financial institutions. "Money" in a modern society therefore comprises cash and deposit money, and is reliant on the confidence of the public that bank deposits can be converted into cash at any time.

When a large number of relatively small-value payments, such as those using checks and bills, need to be settled between banks, they are not settled one at a time between the accounts held by the banks at the Bank of Japan. Rather, payment instruments such as checks and bills are collected and exchanged at clearing houses, where the credit and debit positions of each bank are calculated, and then the net positions are settled between the BOJ accounts. This calculation process is called clearing, and is operated by private institutions. Specifically, there are three major private clearing systems in Japan: the bill and check-clearing system; the Zengin Data Telecommunications System (Zengin System) for funds transfers between bank accounts and for credit card payments; and the Foreign Exchange Yen Clearing System for yen payments arising from foreign exchange and Euro-yen transactions.

BOJ accounts are used to settle the net positions resulting from various clearing systems, as well as to directly settle large-value interbank funds transactions, such as call-money transactions, which do not go through clearing processes. The value of funds transfers at the Bank of Japan totals approximately ¥300 trillion per day, which is equivalent to approximately 60 percent of Japan's annual GDP.

B. The Role of the Central Bank in Payment and Settlement Systems

Bank of Japan thus plays an important role in both the settlement made by cash and the settlement made by deposit money. The duty of central banks is to issue and control money - that is, to ensure the public's confidence in the holding and the using of money.

To this end, two conditions must be satisfied: (1) the value of money must be stable - that is, price stability must be maintained; and (2) the circulation of money and the functioning of payment and settlement systems must be stable and efficient. If it were not possible to use cash and deposits as desired for settlements, people would not be able to hold money with confidence. The mission of central banks, therefore, is to make the currencies they issue more convenient to use and to thereby enable firms and households to confidently engage in daily transactions and funds settlements. Bank of Japan thus plays a vital role in the settlement process in Japan as a whole.

Bank of Japan serves two specific functions in securing the stability and efficiency of the country's payment and settlement systems: (1) providing the means of settlement to the public; and (2) attending to the smooth execution of payments and settlements in Japan.

As a provider of the means of settlement, the Bank issues Bank of Japan notes and ensures their smooth circulation. As I mentioned earlier, cash payments immediately complete the settlement of a transaction by delivering a means of payment directly to the counterparty. This on-the-spot completion of settlement, whereby the payee is able to secure the monetary value received, is described as "settlement with finality."

In order to maintain the finality of cash payments, it is essential to secure the confidence of the people in the soundness of the central bank's assets, which underpins the value of the banknotes. The Bank thus pays close attention to the soundness of its assets. Furthermore, any circulation of counterfeit notes would undermine people's confidence in holding money. To prevent such an occurrence, the Bank examines the authenticity of the large volumes of banknotes that are returned to the Bank of Japan every day from financial institutions. Careful attention is also paid to the cleanness of each of the banknotes in circulation. The Bank also exerts itself to the utmost to improve anti-counterfeiting measures, and has recently been engaged in joint research with overseas central banks on the prevention of banknote counterfeiting using color copiers. Through such efforts, the Bank aims to preclude the circulation of counterfeits.

The Bank also provides current accounts at the Bank as another means of settlement. The Bank offers accounts to private financial institutions, and the funds in these accounts, or deposit money, are equivalent to banknotes in their function as a means of settlement with finality. In order to improve the safety and efficiency of settlements using these BOJ accounts, the Bank has made various efforts, including the introduction of the BOJ-NET - the Bank of Japan Financial Network System, which is an on-line system for funds transfers among the current accounts held by private financial institutions with the Bank of Japan. The

Bank intends to further improve the system in cooperation with those concerned by making real-time gross settlement the only settlement mode, which I shall discuss in detail later.

The second function of the Bank of Japan with regard to the payment and settlement systems is to attend to the safety and efficiency of payments and settlements in Japan, and to provide adequate liquidity when necessary. As I mentioned earlier, the important tasks of the Bank include ensuring a smooth supply of banknotes throughout the country, and monitoring the stability of daily settlements across the BOJ accounts.

In addition, the Bank, in coordination with the operators of the private clearing systems such as the bill and check clearing, plays an important role in preventing any troubles in the systems or participants from jeopardizing the entire payment and settlement systems in Japan. In any settlement system, there is the risk that a failure of one bank to meet its obligations will trigger a chain reaction of defaults, eventually paralyzing the entire system. In addition, both payment and settlement systems and individual banks constituting the systems are supported by the market's confidence. As this confidence is in large part a psychological factor, a failure of a single bank could lead to a run on deposits at other banks. Such risk is referred to as systemic risk. Materialization of systemic risk will disrupt not only settlements between banks but also those between firms and households, having a profound impact on the economy and on the society as a whole. Such systemic risk inherent in the network of settlements is what differentiates the banking sector from other industrial sectors.

The role of the central bank is to constantly monitor the institutional framework and the operation of payment and settlement systems, working in coordination with the parties concerned to thereby prevent the materialization of systemic risk. The central bank must also ensure that the system can be provided the funds to break the chain reaction of defaults should some emergency occur. Another important task of the central bank is to attend to the soundness of the private financial institutions, which are the participants in the payment and settlement systems and which settle the payments between firms and households. To summarize these roles, an important mission of the central bank is to maintain the safety and efficiency of the entire settlement process, a process which involves (1) private financial institutions which accept the deposits of firms and households; (2) private clearing organizations processing interbank payments; and (3) the central bank which discharges interbank settlement obligations resulting from private-sector clearing systems.

C. Measures to Improve the Safety of Payment and Settlement Systems

Payment and settlement systems have not necessarily been an issue of public interest reflecting the general perception that these systems are mechanical processing units for discharging obligations by inputting transaction data. The fact that there had been no financial institution failures until recently and that payments have been settled safely may have supported this perception. However, financial institutions have actually failed and the speed at which systemic risk is transmitted within and beyond international borders has increased significantly owing to technological innovations in finance and telecommunications, and financial globalization. Under these circumstances, it is inappropriate to view payment and settlement systems as merely mechanical processing units. These systems must be resilient against systemic risk, and the establishing of such systems is an extremely important challenge for both the private financial institutions and for the central bank. It becomes apparent that various incidents and studies have raised the awareness of the need to improve the safety of payment and settlement systems among private financial institutions and central banks both in Japan and abroad.

In various countries, new safety standards have been applied to private clearing systems. These standards include limits on each participant's net debit position and collateral requirements to ensure the provision of adequate backup liquidity in the event of an inability to settle by the participant having the largest single net-debit position. These standards were devised by the central banks of the Group of Ten countries as minimum standards to be satisfied by cross-border and multi-currency netting schemes, and are referred to as the Lamfalussy standards, after the chairman of the committee on this study. As these standards can apply to domestic clearing systems, they are being used recently in many countries as guidelines for improving the integrity of private clearing systems.

In Japan, it has recently been decided to enhance the safety measures of the Foreign Exchange Yen Clearing System so as to satisfy the Lamfalussy standards. The Bank will continue to actively support the initiatives to improve the safety of the payment and settlement systems.

D. Improving the Safety of the Central Bank's Settlement System - Real-Time Gross Settlement

The need to improve safety applies not only to private clearing systems but also to the settlement systems operated by central banks. In this regard, an increasing number of central banks have been adopting real-time gross settlement for current account settlements at the central bank. Real-time gross settlement - called RTGS for short - is a system in which the central bank processes and effects every payment instruction sent by private financial institutions in real time and on an order-by-order basis.

Most central banks, including the Bank of Japan, have typically conducted interbank settlements on a designated-time basis rather than by RTGS. In the conventional designated-time settlement, payment instructions are accumulated until designated settlement times instead of each one being settled immediately. At the designated time - at present, 9 a.m., 1 p.m., 3 p.m., and 5 p.m. in Japan - the net settlement position of each financial institution is computed and its account is credited or debited simultaneously.

In designated-time settlement, financial institutions need only the funds equivalent to their net debit positions at the time of settlement, and thus, it is an efficient system from the viewpoint of fund management. However, if a single financial institution in the system were to fail to meet its obligations, all payments would inevitably be suspended, in order that all the payment instructions sent or received by that financial institution could be revoked to recompute the settlement obligations of each financial institution. In addition, such failure could create a shortage of funds at the financial institutions which had planned to make payments with the funds they had expected to receive from the failed financial institution. This may lead to a series of liquidity shortages or defaults - that is, the materialization of systemic risk. The effects of this risk could be grave, considering that the amount of funds handled by the central bank's settlement system is substantial.

With RTGS, the smooth execution of settlements solely depends on the ability of the parties concerned to meet their obligations, as every payment instruction is processed in real time on an order-by-order basis. Therefore, even if a bank were to suddenly become unable to settle, disruption to the system would be limited: suspension of the operation of the entire settlement system, which can occur under designated-time settlement, can be avoided. The

introduction of RTGS in many countries around the world, including some Asian countries, is a result of the efforts of central banks to improve their settlement systems to contain systemic risk.

Against this background, the Bank of Japan also decided at the end of 1996 to make RTGS the only mode of settlement via BOJ accounts. Specifically, by the end of the year 2000, the Bank plans to abolish designated-time settlement and make all funds transfers on the basis of RTGS. This may require market participants to establish new transaction and settlement practices. To ensure the smooth operation of RTGS, the Bank intends to directly supply intraday liquidity, which is indispensable for smooth settlements, to cover liquidity shortages that might arise in the system despite the efforts of participant financial institutions.

Last December, the Bank announced its policy to realize RTGS as the only settlement mode on the BOJ-NET with some specific proposals for design features and requested comments from the public. The Bank was fortunate to receive many valuable comments and recognized the increasing awareness of settlement risk among market participants. The Bank believes that it has been able to gain strong support from the private financial institutions for RTGS, and plans to publish in the near future its policies along with the comments received. The Bank strongly hopes to receive constructive opinions and suggestions in deciding the details of the design of the system. The Bank will also solicit views from a broad range of market participants whenever making a major change in the operation of the Bank's settlement system, as a change in the system could have a significant impact on the market practices and the daily business of the financial institutions participating in the system.

It should be noted that realization of RTGS does not necessarily mean the elimination of all the risks in payment and settlement systems. Moreover, RTGS on the BOJ-NET will produce the desired effects only when the safety of the private clearing systems connected to the Bank's system is ensured. To illustrate this point, suppose that the private financial institutions, for some reason, switched from direct settlements via BOJ accounts to indirect settlements using private clearing systems given the introduction of RTGS. The total amount of risks in the payment and settlement systems as a whole would not decrease if there were inadequate management of risks in the private systems. In this respect, it is indispensable for the private financial institutions, the private clearing organizations, and the central bank to work together to enhance the efficiency and safety of the payment and settlement systems in Japan.

Such efforts of the private sector and the central bank to improve the infrastructure for settlements will also contribute to the strengthening of the global competitiveness of Japan's financial markets, which is indeed the aim of the Japanese "Big Bang" deregulation package proposed by Prime Minister Hashimoto.

E. Improvement in Securities Settlement Systems

In addition to the safety of funds settlements, much attention has been paid globally to the safety of settlements of securities such as government securities and stocks.

Although I do not have enough time today to discuss this issue in detail, the established guidelines for risk management in securities settlements are the recommendations set out in 1989 by the Group of Thirty, an international group of experts in finance.

In accordance with the recommendations, significant progress has been made recently in Japan toward improving the settlement systems for securities. For the settlement of

Japanese government securities (JGS), for example, an on-line network and delivery-versus-payment system have been established. Delivery versus payment, known as DVP, is a mechanism which links the delivery of JGS with the corresponding funds transfer so that both are executed simultaneously. In such a way, a failure to collect payments or receive securities can be avoided. In addition, rolling settlement was introduced in October 1996. Here, settlements are made on every business day for the contracts that were agreed on a specific number of business days previous to that settlement date (currently seven days). This replaces the prior arrangement where contracts made over a certain period were accumulated before they were settled on one of the six designated settlement days of each month (the 5th, 10th, 15th, 20th, 25th, and the last day of the month). The system will be improved further in April 1997 to complete settlement on the third business day after the date of contract.

Regarding settlement of corporate bonds, which may be familiar to many of you here, delivery of bonds has conventionally been made by a document called registration certificate and the corresponding payment has been settled separately through clearing of bills. At the end of 1997, however, on-line delivery of corporate bonds will be brought into effect. A delivery-versus-payment service is also envisioned for the future by connecting the settlement system for corporate bonds with the BOJ-NET.

Various efforts are thus under way in Japan to enhance the safety of securities settlements. However, much remains to be improved. A large volume of stocks and other securities continues to be delivered physically, and DVP systems are yet to be established for such securities. Furthermore, the lag between the contract and the settlement, that is, the final transfers of securities and funds, needs to be shortened for various securities. In this respect, the Bank intends to contribute actively and expects further efforts on the part of the private sector.

F. Developments in Electronic Money

I would now like to briefly discuss the developments in electronic money, which might become a popular means of settlement in the future.

The term electronic money is used to refer to payment mechanisms in which electronic records of funds are stored in devices such as IC cards - with microprocessor chip (integrated circuits) embedded - or in computer networks and then transferred safely from one customer to another. Many pilot projects are under way in various countries, making use of the recent technological innovations in IC cards and computer networks as well as in such security features as encryption. In Japan as well, financial institutions and firms have begun various projects individually or jointly. For example, some banks are individually using IC-card based electronic money on trial within certain buildings in Tokyo. A joint project by a credit card company and several banks on card-based electronic money is also being planned for summer 1998 in a certain area of Tokyo. It is said to be of the largest one of its kind in the world, involving approximately 1,000 stores and 100,000 cards.

When electronic money products become prevalent, they may be used as new means of settlement replacing cash and deposits. People may settle various retail transactions by transferring the electronic values between IC cards or on networks instead of banknotes and coins. To prepare for this possibility, central banks are keenly interested in the soundness and the implications of electronic money developments. From this viewpoint, the central banks of the Group of Ten countries have been studying various aspects of electronic money: security features to prevent fraud and counterfeiting, implications for the effectiveness of the central bank's monetary policy, and the stability of payment and settlement systems.

At present, however, it is very difficult to project how electronic money technology will develop, to what extent electronic money products will be used by the public as a substitute for cash or deposit money, and at what pace these developments will proceed. The pace of the developments will depend on how the reliability of electronic money products is secured and how conveniently these products are utilized. Under these circumstances, it is not easy to reach a verdict on the various relevant issues, nor would it be appropriate to jump to conclusions. Developers and operators of electronic money schemes can be expected to exercise ingenuity on such aspects as security and legal matters, and the innovative capabilities of the private sector should not be discouraged. The basic stance that the Bank should maintain at present is to be flexible to the various possibilities concerning the future course of development in electronic money.

Regarding the implications of the development of electronic money on monetary policy, monetary policy will, in theory, continue to be effective, provided that the situation does not become one where electronic money extensively substitutes not only for cash as a means of retail payment but also for deposit money for large-value transfers. Although the spread of electronic money products might affect the stability of monetary indicators, this will be adequately managed by identifying the amount outstanding of electronic money issued and by devising monetary policy management. Therefore, I wish to state that the Bank of Japan does not intend to put a brake on the development and introduction of electronic money in consideration of its effects on monetary policy.

Maintaining this stance, the Bank intends to continue research on electronic money while observing the developments in the private sector in Japan and abroad. It will release the results of the research, as it has done in the past, wishing to support the efforts of the private sector.

G. The Necessity of Risk Management by Individual Financial Institutions

I have so far discussed the developments regarding payment and settlement systems to contain systemic risk. It is obvious, however, that establishing an appropriate system structure alone is not enough to secure the safety of the systems. It is also important for the system participants, or individual financial institutions, to improve risk control measures by establishing a system for identifying and managing settlement risk.

In a modern society, monetary systems, as mentioned earlier, are based on the public's confidence in: (1) cash issued by the central bank; and (2) deposit money offered by private financial institutions. In order for monetary systems to function smoothly, it is necessary for the financial system as a whole to function with stability and, to that end, financial institutions themselves need to be responsible for securing sound management, including management of settlement risk.

It is evident that financial institutions should manage their risks rigorously. Compared to credit and interest rate risks, settlement risk tends to cause greater losses and disruptions once it materializes, and yet they are difficult to identify and manage. In fact, settlement risk constantly fluctuates significantly, and thus identification and management of the risk require comprehensive understanding of technical details related to processing. For example, it is necessary to know how the payment and settlement systems of different currencies work, and what risks arise from time lags. Such information and skills cannot be acquired overnight. However, in view of the impact settlement risk could have on financial institutions, it

is indispensable to establish a system which makes possible the identification and measurement of settlement risk and the immediate reduction of risk following decisions by the management.

I would like to emphasize that a financial institution equipped with an efficient risk management system will be able to acquire new business opportunities in the area of payment and settlement services. In fact, many European and U.S. financial institutions are creating and offering new business out of settlement operations. They are putting in large amounts of resources to establish adequate internal risk management, and are developing safe and efficient settlement services to provide to financial institutions and other customers. The fact that such operations are viable as business is an indication that European and U.S. financial institutions and firms actively use new innovative payment and settlement services to realize safe and efficient settlements.

IV. Conclusion

In summarizing today's discussion on payment and settlement systems, I would like to address the basic issues from a somewhat different point of view.

Firstly, payment and settlement systems play an extremely important role in the economy as an infrastructure supporting all economic activities, although this is rarely acknowledged in our daily lives. When firms purchase raw materials and sell products, or when households receive wages and salaries, purchase goods, and remit money, all these activities are based on the assumption that payments and settlements of money are effected smoothly - in a manner that people would not even be conscious of it. To satisfy this requirement, modern society has developed a complex and precise mechanism comprising the central bank and the private sector. The expressions "financial institutions" and "financial system" may generally bring to mind the function of intermediating savings and investment through the borrowing and lending of money. Providing safe and efficient settlement services, however, is an equally important function that the central bank and the private financial institutions serve.

Secondly, efforts to further improve the utility and safety of the settlement systems are becoming all the more important as economic transactions become increasingly complex and globalized and as technological innovations in finance including the payment and settlement systems progress. The Lamfalussy standards, RTGS, and the recommendations of the Group of Thirty are indeed part of such efforts.

As technology continues to progress, however, there is no final goal for the development of payment and settlement systems. In addition, financial globalization is intensifying cross-border linkages, with settlement troubles in one country affecting the settlement systems of other countries. It is therefore important for the private sector and central banks to work together to improve the payment and settlement systems by reviewing the safety standards as necessary from a global perspective. We at the Bank of Japan shall continue our efforts to enhance the safety and efficiency of the BOJ-NET, and shall support the efforts of the private sector to improve their systems.

Thirdly, it is important to ensure the soundness of the financial system in a broader sense. As I mentioned repeatedly, the functioning of modern monetary systems has its foundations in the public's confidence in the central bank and the private financial institutions. In order for monetary systems to function properly, the entire financial system needs to operate with stability. Sound management founded on the responsibility of the financial institutions is fundamental in establishing the confidence in private financial institutions. It is necessary for

the central bank to function as the lender of last resort should a trouble which emerged in one part of the settlement system be anticipated to spread throughout the entire system - although it is important to contain such risks in advance, sometimes it may unfortunately become impossible to prevent an incident from having impact on the entire system - so that people's everyday lives will not be seriously affected. In order to prevent the materialization of systemic risk, it is essential for the central bank to assess, through regular on-site examinations and daily monitoring, whether the soundness of individual financial institutions is secured, whether there is excessive concentration of risks in the financial system as a whole, and whether the series of transactions between financial institutions is being settled smoothly.

In summary, payment and settlement systems are vital to every economic entity including the firms and individuals represented here. As the central bank, one of whose missions is to secure the soundness of the financial system, the Bank of Japan will continue its efforts to improve the safety and efficiency of Japan's payment and settlement systems. In this regard, your suggestions and comments will be extremely valuable.

Thank you very much for your kind attention.

This article is excerpted and translated from a speech given by Yasuo Matsushita, Governor of the Bank of Japan, to the Japan Center for Economic Research in Tokyo on February 28, 1997.