Chapter IV Payment and Settlement and the Roles of the Bank of Japan

The Bank of Japan provides Bank of Japan notes and current account deposits at the Bank (hereafter, "BOJ account deposits") as payment instruments. The Bank also operates the payment and settlement systems for BOJ account deposits and Japanese government securities (JGSs). This chapter explains the roles of the Bank in payment and settlement activities, with reference to major payment instruments and payment and settlement systems in Japan.

A. Roles of Payment and Settlement Systems

In most daily economic transactions in the monetary economy, the parties concerned promise to exchange money for goods or services. In executing an economic transaction, one party assumes an obligation to pay money as promised and acquires the right to receive goods or services from its counterparty. On the other hand, the other party assumes an obligation to deliver the goods or services as promised and acquires the right to receive payments from its counterparty. Settlement refers to the process of discharging such rights and obligations by transferring money and delivering goods and services (see Figure 4-1).

For example, in Japan, we use cash when shopping, and we pay public utility charges by direct debit from deposit accounts at banks or by credit card. The discharge of rights and obligations by the transfer of money is referred to as payment. As explained below in Section B in this chapter, various payment instruments are used as money for payments and receipts. When orders for sales and purchases of stocks are placed with a securities company and a contract is concluded,[1] the stocks are delivered in exchange for the transfer of money for the transaction. The discharge of rights and obligations by the delivery of securities such as stocks and bonds is referred to as securities settlement.

Prior to the settlement of funds and securities, a large number of rights and obligations are often netted down into a smaller number. This kind of process taken ahead of settlement is referred to as clearing.

Clearing and settlement transactions, particularly among financial institutions, are often processed systematically in line with a standardized set of rules and procedures that streamline business operations. The arrangements designed for this purpose are payment and settlement systems. These systems include physical

[1] In sales and purchases of stocks, transaction orders are not always executed. Contracts are concluded only when the sell order price comes to terms with the buy order price.

structures, such as computer systems, and institutional arrangements, such as settlement rules and procedures agreed upon among the users of the system, including financial institutions.[2] In financial transactions, as explained below in Section C in this chapter, many financial institutions take part in payment and settlement systems to process settlements of funds and securities. Payment systems that process the transfer of funds, and securities settlement systems that process the delivery of securities, function as infrastructures indispensable for financial transactions.

Various economic activities, including transactions in financial markets, rely on the assumption that settlements will take place as scheduled. Particularly if one party fails to make payments as agreed upon, this raises the risk that its counterparties, who will be making onward payments to other counterparties with the money received from the failing party, could also fail to make payments. Reducing these kinds of risks and maintaining the sound functioning of payment and settlement systems are the crucial roles for the central bank of each country, including the Bank of Japan.

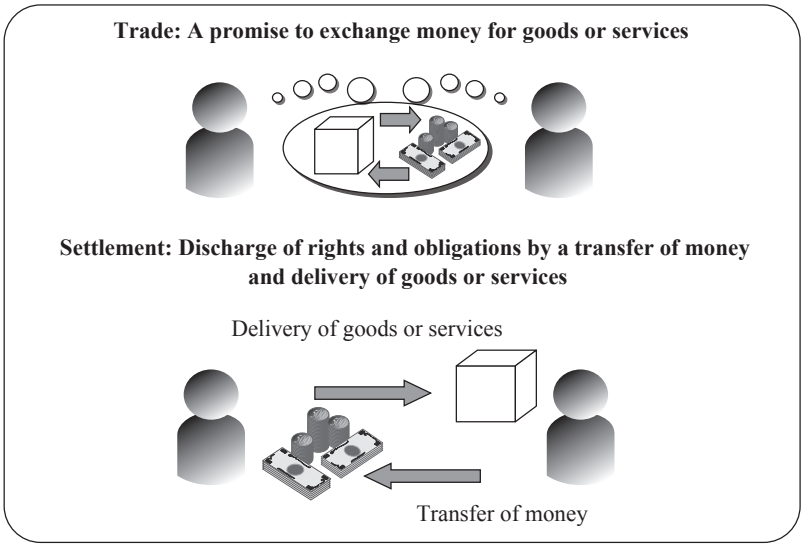
As explained below in Section D in this chapter, in order to ensure safe and efficient payments and settlements, the Bank: (1) directly provides banknotes and BOJ account deposits as very safe payment instruments; (2) provides the payment and settlement systems for BOJ account deposits and JGSs, and operates the Bank of Japan Financial Network System (BOJ-NET) to facilitate payment and settlement processes; and (3) oversees private-sector payment and settlement systems by monitoring their institutional design, risk management, and operations, assessing them against the objectives of safety and efficiency, and inducing changes for improvements where necessary.[3] Moreover, if the materialization of systemic risk (see Chapter I.B.3) were to become highly likely, the Bank would function as the lender of last resort as necessary in order to supply the required liquidity to financial institutions temporarily suffering from liquidity constraints (see Chapter VI.D.1).

The following sections in this chapter describe the major payment instruments (Section B) and payment and settlement systems (Section C) in Japan, followed by the Bank's initiatives in the field of payments and settlements (Section D). The technical terms are collectively explained in Box 4, "Payment and Settlement Terminology".

[2] The term "a payment/settlement system" is used to indicate one specific payment/settlement system, while "payment and settlement systems" indicates a nation's payment and settlement systems as a whole, which consists of individual payment and settlement systems. Throughout this book, these terms are used in line with the above general terminology, with supplementary explanations to provide clarification where necessary.

[3] The Bank also addresses the enhancement of business continuity arrangements and international cooperation related to payment and settlement (see sections D.3 and 4 in this chapter).

Figure 4-1 Trade and Settlement



B. Major Payment Instruments

Cash, namely, banknotes and coins, is one kind of money used for payment (see Chapter III.A.1). Demand deposits held at financial institutions by individuals and firms, as well as BOJ account deposits held by financial institutions (see Section D.1.b in this chapter) are also used as money for payment. These kinds of money, which are received or paid to complete transactions, are collectively referred to as payment instruments.

The following sections briefly explain major payment instruments: cash, demand deposits held at financial institutions, and BOJ account deposits.

1. Cash

Cash is the general term for banknotes and coins. Banknotes and coins are highly creditworthy because they are issued by the central bank and the government, and are widely used as payment instruments, mainly for small-value retail payments. Cash has three notable characteristics: first, it is a legally defined payment instrument that may not be refused by any creditor in satisfaction of

any debt; second, cash is a payment instrument by which settlement finality[4] can be achieved; and third, cash guarantees anonymity,[5] since it is difficult to know who used it, when and where it was used, or for what purpose it was used.

2. Demand deposits held at financial institutions

Demand deposits[6] are another payment instrument frequently used in everyday life in Japan. For example, when we want to pay for utilities such as electricity bills by direct debit, we apply at a financial institution, at the bank window or by mail, for a prearranged direct debit service, and the monthly charges are then debited from our deposit account and credited to the account of the electric power company. When we shop by mail order and instruct Bank A, which holds our deposit account, at the bank window, at an automated teller machine (ATM), or by telephone or personal computer, to transfer money to the seller, the payment is made by crediting the money to the seller's account via Bank B, which holds the seller's account (see Figure 4-2).

Moreover, when we make purchases with credit cards or debit cards at a shop, the payment is made, without individually instructing the banks, by debiting the money from our deposit account designated in advance for direct debit use, and by crediting the money to the shop's deposit account.[7] In this way, the demand deposits held at financial institutions are widely used as payment instruments in everyday life.

Demand deposits have three notable characteristics. First, bulk and remote payments can be made efficiently by using payment and settlement systems and the function of financial institutions' funds clearing, as obligations are settled by debiting the payer's account and crediting the payee's account. This avoids the costs and risks associated with payment in cash, namely, the costs of delivery and safekeeping and the risk of loss or theft. Second, like cash, demand deposits can achieve settlement finality. Third, individuals or firms can obtain cash anytime by withdrawing it from their deposits when necessary.

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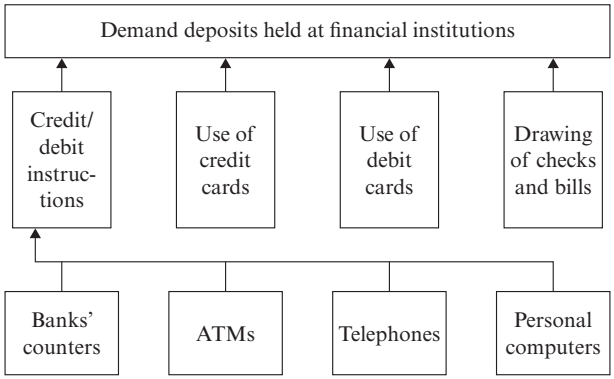
[4] In general, the irrevocable and unconditional characteristics of settlement of debts are referred to as finality (see "A glossary of terms used in payments and settlement systems" provided by the Committee on Payment and Settlement Systems (CPSS), a standing committee located at the Bank for International Settlements; see Footnote 37).

[5] Electronic money, which is rapidly becoming prevalent in the area of settlement of small-value retail payments due to innovations in information and communications technology in recent years, is inferior to banknotes in terms of general usability and acceptability, although many electronic money services also allow anonymity (see Chapter III.A.2).

[6] See Footnote 1 in Chapter III for the definition of demand deposits.

[7] Similarly, when a company purchases materials by drawing checks and bills, the payment is also made by crediting/debiting demand deposits at financial institutions.

Figure 4-2 Payment by Using Demand Deposits held at Financial Institutions



3. BOJ account deposits

The Bank receives current account deposits from financial institutions,[8] and these deposits are referred to as BOJ account deposits. The financial institutions that conduct transactions using BOJ account deposits are referred to as financial institutions holding BOJ account deposits (see Box 1, "Number of Institutions Holding Current Account Deposits at the Bank of Japan [BOJ Account Holders]"). BOJ account deposits are used as very safe payment instruments provided directly by the Bank when transferring funds between financial institutions, between financial institutions and various settlement systems, and between the Bank and financial institutions.

Similar to demand deposits, BOJ account deposits can be used as payment instruments to conduct very safe and efficient settlements by transferring, debiting, and crediting funds, while avoiding the costs of delivery and risks associated with payment in cash. Like cash, BOJ account deposits can achieve settlement finality. In addition, BOJ account deposits have the highest creditworthiness and liquidity compared with demand deposits held at financial institutions, and, as payment instruments provided by the central bank, they possess neutrality.

[8] In addition, the Bank accepts yen deposits from other central banks, international organizations, and governments (see Section C in Chapter VIII for yen deposit transactions with other central banks and international organizations, and Section A in Chapter IX for transactions with the government through the BOJ accounts).

C. An Overview of Japan's Payment and Settlement Systems

In Japan, most financial institutions participate in the payment and settlement systems to settle financial transactions: payment systems execute funds transfers, and securities settlement systems deliver securities. These systems function as the infrastructures indispensable for domestic financial markets. This section outlines Japan's payment and settlement systems. First, an overview of these systems is provided (see Section C.1 in this chapter), followed by explanations on its major components: payment systems (see Section C.2 in this chapter); securities settlement systems (see Section C.3 in this chapter); and the central counterparties (CCPs; see Section C.4 in this chapter).

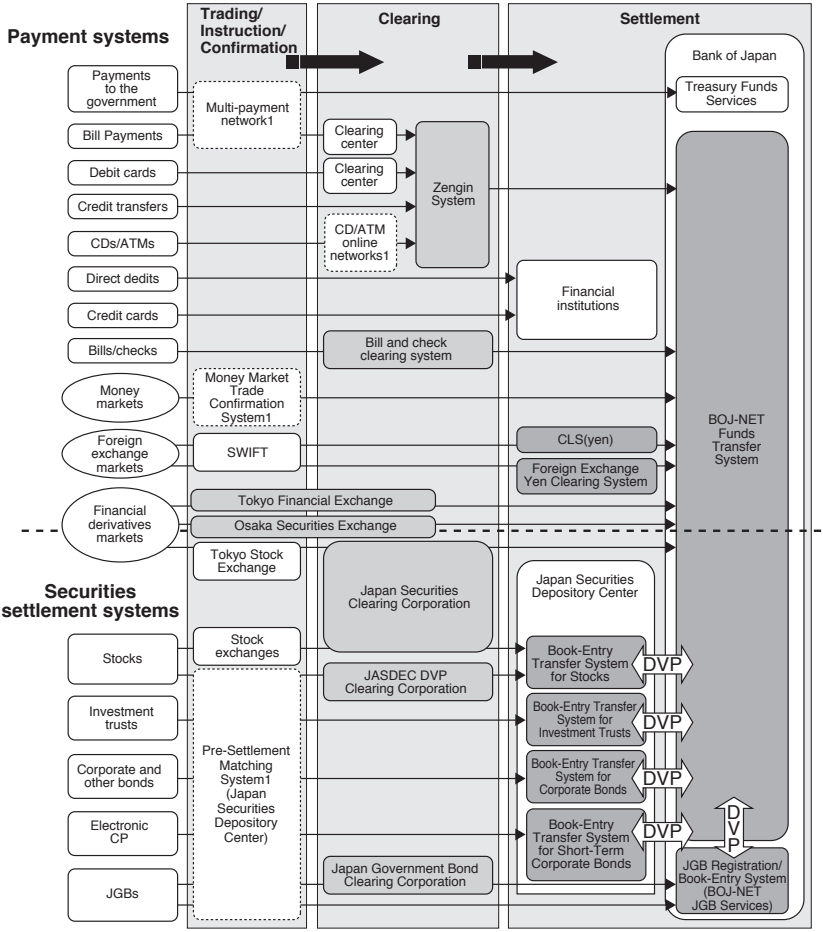
1. Overview of Japan's payment and settlement systems

Before explaining individual payment and settlement systems, Japan's payment and settlement systems are overviewed along the lines shown in Figure 4-3. As shown on the vertical axis in the figure, Japan's payment and settlement systems are broadly divided into payment systems and securities settlement systems. As shown on the horizontal axis in the figure, in each of these types of payment and settlement systems, several phases generally follow the conclusion of a transaction contract before reaching settlement. For example, the flow of procedures from the conclusion of a transaction contract to the settlement in the market of financial products is divided into three phases: (1) transactions, such as sales and purchases, at exchanges; (2) clearing conducted at CCPs (see Box 4, "Payment and Settlement Terminology"); and (3) settlements, such as the transfer of funds and delivery of securities, conducted at settlement institutions.

In the transaction phase, the terms of the contracts between buyers and sellers are usually matched after the contracts for transactions are concluded. In the clearing phase, as a preparation for settlements, the data of transactions among market participants are aggregated to calculate the balances of transactions. After these phases, the transfer of funds and delivery of securities are carried out at settlement institutions.

Figure 4-4 shows the average daily value and number of transactions processed by the major payment and settlement systems in 2009. Among these, the average daily value of payments settled in the BOJ-NET Funds Transfer System (see Section D.1.d in this chapter) was more than 100 trillion yen, mainly reflecting large-value payments, including those of interbank call transactions. Accordingly, the BOJ-NET Funds Transfer System is the core payment and settlement system in Japan.

Figure 4-3 Overview of Payment and Settlement Systems in Japan



Note: 1. Systems surrounded by dotted lines are not used for all transactions.

Figure 4-4 Average Daily Value and Number of Transactions Processed by Major Payment and Settlement Systems in Japan[1]

Payment systems	Value (tril. yen)	Number (thous.)
BOJ-NET Funds Transfer System	112.1	50.7
Of which: Interbank transfers	38.5	—
DVP[2] for JGBs	42.4	—
CLS (yen payments) system[3]	28.8	81.6
Foreign Exchange Yen Clearing System (FXYCS)	13.1	25.5
Domestic Funds Transfer System[4]	9.9	5,680.1
Bill and check clearing system[5]	1.1	128.3

Securities settlement systems	Value (tril. yen)	Number (thous.)
BOJ-NET JGB Services	81.2	16.1
Japan Government Bond Clearing Corporation (JGBCC)[6]	35.2	—
Japan Securities Clearing Corporation (JSCC)[6]	1.9	—
JASDEC DVP Clearing Corporation (JDCC)[6]	0.9	88.4
Japan Securities Depository Center (JASDEC)[7]		
Of which: Stocks	—	355.4
Electronic CP	5.3	1.3
Corporate and other bonds	1.0	2.0
Investment trusts	0.7	15.4

Notes: 1. Figures are average daily values and numbers for 2009.
2. For details on DVP, see Box 4, "Payment and Settlement Terminology."
3. For details on CLS, see Section C.2.d in this chapter.
4. Figures for the Domestic Funds Transfer System show the value and number of payments cleared.
5. Figures for the bill and check clearing system show the value and number of bills and checks cleared at the Tokyo Clearing House.
6. Figures for JGBCC, JSCC, and JDCC show the value of transactions cleared by a CCP. JSCC is a CCP for stock transactions executed on stock exchanges. JDCC is a CCP for stocks traded between securities companies and their customers.
7. Figures for JASDEC show the total amount of issuance, transfer, and redemption made on the book-entry transfer system for each type of security.

Sources: Bank of Japan, Tokyo Bankers Association, CLS, JGBCC, JSCC, JDCC, and JASDEC.

2. Payment systems

Major payment systems operated by the private sector in Japan are: (1) the Domestic Funds Transfer System; (2) the bill and check clearing system; (3) the Foreign Exchange Yen Clearing System (FXYCS); and (4) CLS. In these payment systems operated by the private sector, final settlements of payments between financial institutions are processed mainly with BOJ account deposits (BOJ-NET Funds Transfer System; for an explanation on BOJ account deposits, and the BOJ-NET, see sections D.1.b and d in this chapter).

a. Domestic Funds Transfer System

Funds transfers between banks at the request of customers (individuals and firms), and settlements associated with collections of bills and checks between financial institutions in different areas, are processed under the Domestic Funds Transfer System. The system is operated by the Japanese Banks' Payment Clearing Network (Zengin-Net),[9] which plays the role of a central organization, aggregating and calculating the balances of the rights and obligations between financial institutions by recalculating them into a bilateral right-and-obligation relationship between Zengin-Net and each financial institution. The arrangement in this system that processes related data is called the Zengin Data Telecommunications System (Zengin System).[10] Most of the financial institutions in Japan participate in the Domestic Funds Transfer System.

To understand the arrangement of the system, the specific operational flow is explained as follows (see Figure 4-5; the numbers in parentheses in the following paragraphs correspond to the numbers in Figure 4-5).[11]

(1) The process starts when a firm (Payer X), holding deposits at Financial Insti-

[9] Zengin-Net started operation in October 2010, as the successor to the clearing operations by the Tokyo Bankers Association, as a licensed clearing agency for interbank funds transfers based on the Payment Services Act.

[10] Moreover, the central organizations of financial cooperatives have built similar systems by business category, including the Cooperative Settlement Data Transmission System of the Norinchukin Bank, the national *shinkin* banks data communication system of the Shinkin Central Bank, the national *shinkumi* banks data communication system of the Shinkumi Federation Bank, and the national labor banks data communication system of the Rokinren Bank. The transfer of funds can be processed between banks and other financial cooperatives with the participation of central organizations in each business category in the Domestic Funds Transfer System.

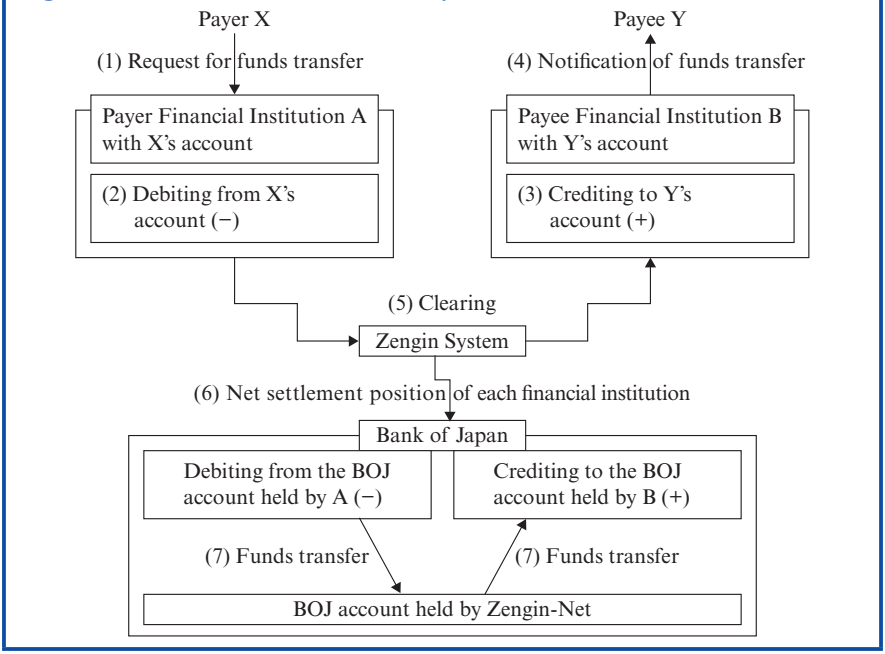
[11] To simplify the explanation, this example supposes that there are no transactions between Financial Institution A and Financial Institution B other than the request from Payer X for payment to Payee Y.

tution A, makes a request to transfer funds to another firm (Payee Y), holding deposits at Financial Institution B.
(2) Payer Financial Institution A, which receives the request, debits funds from the deposit account held by Payer X (Account X).
(3) and (4) Payer Financial Institution A sends payment information to payee Financial Institution B via the Domestic Funds Transfer System. Then, Payee Financial Institution B credits the deposit account held by Payee Y (Account Y) and sends notification of funds transfer to Payee Y.
(5) Data relating to Payer X and Payee Y, the payment value, and other information are exchanged between Financial Institution A and Financial Institution B via the Zengin System Computer Center. The Zengin System Computer Center aggregates and calculates the net settlement positions of participating financial institutions every business day.
(6) The data of the net settlement position of each institution is produced. In this way, rights and obligations between Financial Institution A and Financial Institution B are recalculated as those between Financial Institution A and Zengin-Net, and those between Financial Institution B and Zengin-Net. The center sends information on the net positions of participating financial institutions online to the Bank of Japan.
(7) The settlement of the net position between Financial Institution A and Financial Institution B is completed at 16:15 Japan Standard Time (JST) by transferring funds from the BOJ account held by Financial Institution A to the BOJ account held by Zengin-Net, and then transferring funds from the BOJ account held by Zengin-Net to the BOJ account held by Financial Institution B.

As described below, large-value payments equal to or larger than 100 million yen through the Domestic Funds Transfer System will be settled on a real-time gross settlement (RTGS) basis from November 2011. With RTGS, funds will be transferred one by one on a real-time basis at the request of financial institutions to the Zengin System[12] (see Box 4, "Payment and Settlement Terminology"). Details of RTGS are explained in Section D.1.d in this chapter, "Operating BOJ-NET."

[12] After the introduction of RTGS for large-value transactions through the Domestic Funds Transfer System in November 2011, only small-value (less than 100 million yen) transactions will be settled by the procedures explained in the text.

Figure 4-5 Domestic Funds Transfer System



b. Bill and check clearing system

Bills and checks drawn by individuals or firms are generally brought to financial institutions in order to collect the money. The bill and check clearing system is used by financial institutions to settle the bills and checks brought to the institutions. Member institutions gather in a designated clearing house at a specific time in order to exchange bills and checks, and to calculate their net settlement positions. Clearing houses are operated by the bankers associations of their respective areas.[13] In most of the clearing houses, the net settlement positions are settled through BOJ account deposits.

[13] Based on the enforcement of the Electronically Recorded Monetary Claims Act in December 2008, the electronic recorded monetary claims system was introduced, with which it became possible to use electronic monetary claims as an alternative to the traditional credit function for bills. In response to this, various initiatives are being taken; for example, the Japanese Bankers Association has been making preparations to establish an electronic monetary claims recording institution, Zengin Electronic Monetary Claims Network, Ltd. (Densai Net), scheduled for May 2012.

To understand the arrangement, the specific operational flow is explained as follows (see Figure 4-6; the numbers in parentheses in the following paragraphs correspond to the numbers in Figure 4-6).[14]

(1) The process starts when a firm (Payer Y) makes payment by drawing a bill to a supplier (Payee X) for goods purchased. The bill drawn by Payer Y designates a branch of Financial Institution B, at which Payer Y has an account, as the place of payment.

(2) Payee X, the recipient of the bill, brings the bill to Financial Institution A, at which Payee X has an account, and makes a request for collection of funds.

(3) Financial Institution A, which accepts the request, brings the bill to the clearing house on the due date and requests Payer Financial Institution B to pay the funds.

(4) At the clearing house, member financial institutions present and exchange bills and checks,[15] and data are prepared on the net settlement position of each institution.

(5) In the case of settling the net settlement position through the BOJ accounts, the settlements are completed at 12:30 JST on the day of the exchange of the bill. At that time, the funds are transferred from the BOJ account held by Financial Institution B to the BOJ account held by the bankers association, while the funds are transferred from the BOJ account held by the association to the BOJ account held by Financial Institution A.

(6) After the bill is exchanged in the clearing house, Payer Financial Institution B brings the bill back from the clearing house.

(7) Payer Financial Institution B debits the deposit held by Payee Y (Account Y).[16]

(8) The process is completed when Payee Financial Institution A credits Payee X's account (Account X) on the following business day.

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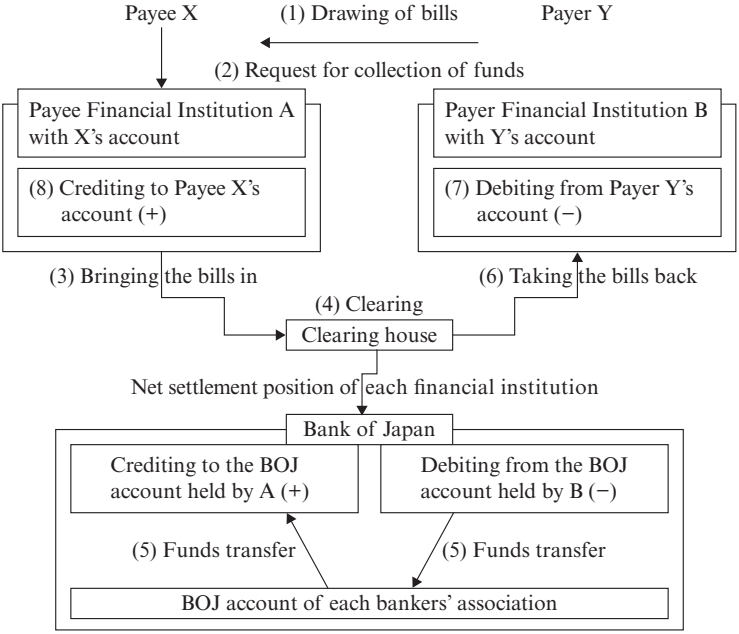
[14] To simplify the explanation, this example supposes that there are no transactions between Financial Institution A and Financial Institution B other than the request to collect bills drawn by Payer Y for payment to Payee X.

[15] Bills and checks exchanged at a clearing house are limited to those payable at the financial institutions within its local area. When it is necessary to collect money for bills and checks across areas because of the network of financial institutions, the transactions are settled through the Domestic Funds Transfer System.

[16] If the financial institution finds any reason to dishonor the bill it brings back, such as a deficiency in the format, insufficient funds, and lack of current account transactions with the institution, the institution brings the bill to the clearing house on the following business day in order to process it as a dishonored bill.

Figure 4-6 Bill and Check Clearing System



c. Foreign Exchange Yen Clearing System (FXYCS)

The FXYCS is used for clearing interbank yen transfers arising from transactions such as yen payments from individuals and firms overseas to residents in Japan, or foreign exchange transactions between financial institutions (see Section D in Chapter VIII). The settlements under the system have been conducted by the RTGS method as a part of the next-generation RTGS project (see Box 2, "Next-Generation RTGS Project") since October 2008. The Bank, entrusted by Tokyo Bankers Association (the present Japanese Bankers Association), operates the system, for example, transferring payment instructions, through the BOJ-NET.

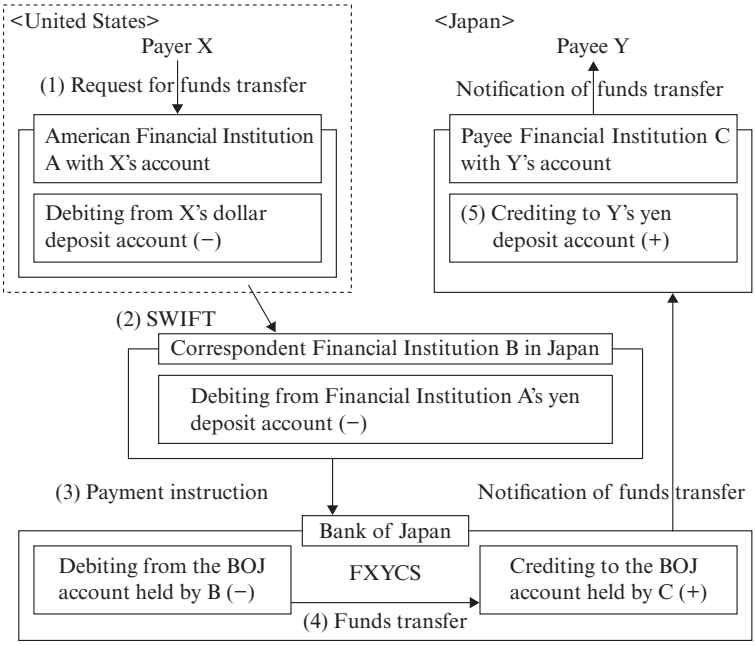
The arrangement of the system is explained as follows (see Figure 4-7; the numbers in parentheses in the following paragraphs correspond to the numbers in Figure 4-7).

(1) This illustrates a case in which a U.S. firm (Payer X) brings U.S. dollars to Financial Institution A in the United States, at which Payer X holds an account, and requests it to make a yen payment to a Japanese firm (Payee Y).

(2) Financial Institution A, which accepts the request, sends payment information by

using systems such as that of the Society for Worldwide Interbank Financial Telecommunication (SWIFT),[17] to its Correspondent Financial Institution B in Japan.[18]
(3) Correspondent Financial Institution B debits Financial Institution A's deposit account at Financial Institution B and sends payment information via the BOJ-NET to Financial Institution C.
(4) Through the BOJ-NET, the funds are transferred from the BOJ account held by Correspondent Financial Institution B to the BOJ account held by Payee Financial Institution C.
(5) Financial Institution C then credits the deposit account held by Payee Y.

Figure 4-7 Foreign Exchange Yen Clearing System (FXYCS)



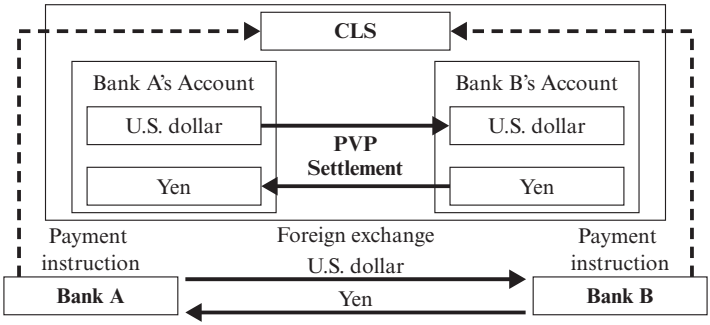
[17] SWIFT is a member-owned cooperative, which was established in Belgium. Its major business operation is to provide global data communication services for financial institutions. The services are related to transfers of customers' funds, interbank funds transfers, and transactions relating to securities. In Japan, SWIFT started its services in 1981.

[18] A correspondent financial institution is entrusted with making the transfer of funds on behalf of other institutions. For example, when a financial institution conducts a cross-border transfer of funds to a country where it does not have branches, it entrusts a financial institution in the country to transfer funds.

d. CLS

Settlements of foreign exchange transactions are also conducted through CLS,[19] which has its headquarters in New York. In foreign exchange transactions, if a trade of two currencies is settled in the payment and settlement systems in each country, a risk that one party will pay the currency it sold but not receive the currency it bought (the risk that the principal value is lost)[20] arises in the settlement process, as there is often a time difference between the settlement arrangements for the two traded currencies. In order to eliminate such risk in foreign exchange transactions, there is a payment mechanism referred to as payment versus payment (PVP). In PVP, by placing certain conditions on the transfer of both currencies to be settled, the transfer of one currency only occurs if the transfer of the counterparty currency takes place (see Box 4, "Payment and Settlement Terminology"). CLS is a cross-border payment system that settles foreign exchange transactions for the major currencies on a PVP basis during a five-hour window[21] (see Figure 4-8). CLS has deposit accounts in relevant central banks for each currency. The transactions between the participating financial institutions and CLS are conducted through accounts at central banks, which are very safe.

Figure 4-8 Settlement at CLS



[19] CLS was established and is owned by major private banks around the world. It started its services in 2002. Central banks in advanced countries, including the Bank of Japan, cooperated in its establishment.

[20] This type of risk is called Herstatt risk, after a case in 1974 in which Herstatt Bank in West Germany went bankrupt without paying funds in dollars to a counterparty after it received funds in Deutsche Marks from the counterparty, and, as a result, the counterparty could not receive the funds in dollars.

[21] The window for Asia-Pacific currencies is three hours.

e. Other payment systems

Other payment systems include CD/ATM networks[22] and the Multi-Payment Network.[23]

3. Securities settlement systems

Securities settlement systems in Japan can be categorized into three groups according to the type of securities: those for Japanese government securities (JGSs), e.g., the JGB Book-Entry System; those for debt securities other than JGSs, i.e., the Book-Entry Transfer System for Short-Term Corporate Bonds and the Book-Entry Transfer System for Corporate Bonds; and those for stocks, i.e., the Book-Entry Transfer System for Stocks and the Book-Entry Transfer System for Investment Trusts. The following sections explain the details of these systems.

a. Japanese government securities

The JGB Book-Entry System and the JGB Registration System are used for the settlements of JGSs. Currently, more than 99.9 percent of JGS settlements are processed under the JGB Book-Entry System, and the JGB Registration System[24] is rarely used. The Bank is the central securities depository for the JGB Book-Entry System and the register institution for the JGB Registration System. In both systems, settlements are processed through the BOJ-NET JGB Services.

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[22] The CD/ATM network among financial institutions processes receipts, payments, and transfers of deposits, using CDs/ATMs of financial institutions at which customers do not hold their deposit accounts. Payments between financial institutions in the network are processed through the Zengin System.

[23] The Multi-Payment Network is the network that electronically receives, sends, and processes the data related to public utility charges, local public funds, and treasury funds that customers pay through financial institutions. The payments related to treasury funds, using the network, are processed through the BOJ accounts. Other payments between financial institutions are processed through the Zengin System (see Chapter IX.A.5.b for the details of online processing of government revenues, using the Multi-Payment Network).

[24] The JGB Registration System was established in 1906. In that system, JGSs are registered without issuance of securities in a physical form based on the request of the JGS holder. The registration of JGSs is conducted by recording in the book — the registration book — which the registrar of the system — the Bank — keeps. When JGS holders change due to transactions of JGSs, the transactions are completed by changing the holders' names in the registration book.

The Bank established the JGB Book-Entry System in 1980 against the background of a surge in JGS transactions since the 1970s. In the beginning, transfer of JGSs by book entries was conducted based on the existence of physical certificates collectively deposited at the Bank. In January 2003, with the enforcement of the Act on Book-Entry Transfer of Company Bonds, etc.,[25] which enabled a full dematerialization of JGSs, corporate bonds, and other securities, the old system was converted to the current JGB Book-Entry System (see Section C in Chapter IX).

In a sale or purchase of JGSs, in order to eliminate the risk that payment for a transaction is not conducted even though the JGSs are delivered, and vice versa, in 1994 the Bank introduced DVP settlement of JGS transactions, which links the BOJ-NET Funds Transfer System and the BOJ-NET JGB Services (see Section D.1.d in this chapter) to ensure that delivery occurs if, and only if, payment occurs (see Box 4, "Payment and Settlement Terminology"). When JGS settlement on an RTGS basis started in 2001, the function of simultaneous processing of DVP and collateralization (SPDC) was also introduced in order to facilitate smooth JGS settlement on a DVP basis (for the SPDC function, see Section D.1.c in this chapter).

b. Debt securities other than JGSs (electronic CP and corporate bonds), stocks, and investment trusts

There are also book-entry systems for debt securities other than JGSs and stocks: namely, the Book-Entry Transfer System for Short-Term Corporate Bonds used for electronic CP;[26] the Book-Entry Transfer System for Corporate Bonds used for corporate bonds;[27] the Book-Entry Transfer System for Stocks used for stocks; and the Book-Entry Transfer System for Investment Trusts used for investment trusts. These systems were set up as part of the series of reforms in security settlement systems aimed at realizing dematerialization of securities certificates. The Book-Entry Transfer System for Short-Term Corporate Bonds started in 2003, that for

[25] The Act on Book-Entry Transfer of Company Bonds, etc. was revised to the Act on Book-Entry Transfer of Company Bonds, Shares, etc., which was enforced in January 2009.

[26] Electronic CP is dematerialized CP that is legislatively referred to as short-term corporate bonds. CP is widely used for short-term financing by firms and is traded in money markets. Due to the dematerialization of CP, settlement periods were shortened, the settlement risk due to the realization of DVP was reduced, and the burden of storing, transporting, and delivering the certificates of CP was eliminated.

[27] Corporate bonds include corporate bonds, municipal bonds, government-guaranteed bonds, Fiscal Investment and Loan Program Agency bonds, asset-backed corporate bonds, and bank debentures.

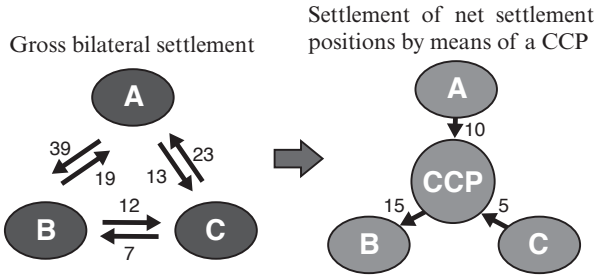
Corporate Bonds started in 2006, that for Investment Trusts started in 2007, and that for Stocks started in 2009. For each system, Japan Securities Depository Center (JASDEC)[28] is the central securities depository to settle securities transactions, and operates systems that process transfers of securities and other procedures.

4. Central counterparties (CCPs)

CCPs (see Box 4, "Payment and Settlement Terminology") clear securities transactions, such as sales and purchases of securities that are contracted among many relevant counterparties. The clearing is conducted by recalculating rights and obligations between the seller and the buyer into a bilateral right-and-obligation relationship between the seller and the central counterparty and that between the central counterparty and the buyer. Therefore, participating counterparties can reduce the amount of funds and securities required for settlement by, for example, calculating the net settlement positions for the same securities and processing settlements of net settlement positions of funds and securities with the CCP (see Figure 4-9). In addition, when a participant is unable to settle a transaction, a CCP can also fulfill a settlement obligation of the defaulting participant in relation to other participants.

The following sections explain CCPs in Japan, namely (1) those for securities transactions and (2) those for financial derivative transactions.

Figure 4-9 Cleaning Arrangement



In settlements among multiple related counterparties, if a CCP intermediates among them, they only have to process the net settlement positions between them and the CCP. For example, in the case of settlement without a CCP, A needs to pay 39 to and receive 19 from B, and also pay 13 to and receive 23 from C. On the other hand, in the case with a CCP, A can settle the transaction merely by paying 10 to the CCP, which is calculated by subtracting the total amount received (19 + 23 = 42) from the total amount paid (39 + 13 = 52).

[28] JASDEC was inaugurated as a non-profit foundation in 1984 and started operation in 1991. It was incorporated in 2002.

a. CCPs for securities transactions

CCPs for securities transactions are: (1) the Japan Government Bond Clearing Corporation (JGBCC),[29] which clears transactions among major participants in the JGS market; (2) the Japan Securities Clearing Corporation (JSCC),[30] which clears transactions such as those of stocks among securities companies in stock exchanges; and (3) JASDEC DVP Clearing Corporation (JDCC),[31] which clears transactions such as those of stocks between securities companies and their client financial institutions.[32] Payments and JGS settlements related to transactions cleared by the JGBCC are processed through the BOJ-NET Funds Transfer System and the BOJ-NET JGB Services (see Section D.1.d in this chapter), both of which are operated by the Bank. Payments related to transactions cleared by the JSCC and the JDCC are processed by funds transfer via deposit accounts held in private financial institutions or funds transfer via BOJ accounts. Settlements of securities, including stocks, are processed through the system operated by JASDEC.

b. CCPs for financial derivatives transactions

Financial derivatives are listed on the Tokyo Stock Exchange (bond futures and other financial products), the Osaka Securities Exchange (stock price index [Nikkei 225] futures, foreign exchange margin contracts, and other financial products), and the Tokyo Financial Exchange (interest rate futures, foreign exchange margin contracts, and other financial products). Financial derivative transactions contracted on the Tokyo Stock Exchange are cleared through the JSCC, which is a CCP. Financial derivative transactions contracted on the Osaka Securities Exchange or the Tokyo Financial Exchange are cleared through each exchange itself, as they also function as CCPs. Payments for the transactions cleared by these CCPs are processed by funds transfer via deposit accounts held

[29] The JGBCC is a stock company established in 2003 by a joint capital investment of major participants in the JGS market, such as securities companies, banks, and *tanshi* companies. It started JGS clearing services in 2005.

[30] The JSCC started its services in 2003 as the first cross-market clearing organization in Japan. The securities clearing functions of the six securities exchanges, including the Tokyo Stock Exchange and Osaka Securities Exchange, were separated from these exchanges and integrated into JSCC.

[31] The JDCC was established as a wholly-owned subsidiary of JASDEC, a central securities depository (CSD), and started its services in 2004.

[32] The three CCPs are licensed Financial Instruments Clearing Organizations based on the Financial Instruments and Exchange Act.

in private financial institutions or by transfer via the BOJ accounts.

D. The Bank's Business Related to Payment and Settlement

Following from the above explanation of payment instruments, and payment and settlement systems, this section outlines the Bank of Japan's business related to payment and settlement. To ensure safety and efficiency in payment and settlement systems, the Bank operates and oversees such systems, and also provides payment instruments. More specifically, the Bank itself provides banknotes and BOJ account deposits as payment instruments. It also operates payment and settlement systems, i.e., the BOJ-NET and the JGB Book-Entry System (see Section D.1 in this chapter). Regarding the oversight of payment and settlement systems, the Bank: monitors the institutional design, risk management, and day-to-day operation of private-sector payment and settlement systems; assesses their safety and efficiency; and induces changes when necessary (see Section D.2 in this chapter). The Bank works to strengthen business continuity arrangements (see Section D.3 in this chapter) and to enhance international cooperation related to payment and settlement (see Section D.4 in this chapter).

1. Provision of payment instruments and operation of payment and settlement systems

From the Bank's overall business related to payment and settlement, this section first explains the issuance of banknotes and the provision of BOJ accounts as the provision of payment instruments, and then describes the operation of the JGB Book-Entry System and the BOJ-NET as the operation of the payment and settlement system.

a. Issuance of banknotes

The Bank issues banknotes as payment instruments and works to ensure their smooth circulation. It is an important mission for the Bank to ensure that people have confidence in the safety of banknotes as payment instruments and can use the banknotes conveniently. The Bank endeavors to ensure that banknotes circulate smoothly nationwide through financial institutions' counters and ATMs, to meet demand for banknotes, and that banknotes are circulated smoothly even in the event of disasters and other emergencies (see Chapter III).

b. Provision of BOJ account deposits

BOJ account deposits held at the Bank are used for final settlement of various transactions, such as financial institutions' deposit and withdrawal of banknotes to/from the Bank, funds and securities transactions between financial institutions, and deferred net settlement through private-sector payment and settlement systems (see Box 4, "Payment and Settlement Terminology"). In addition, debiting and crediting BOJ accounts are used to settle such transactions as the market and lending operations that the Bank conducts with financial institutions (see Chapter V.C.1 and Chapter VI.D.1), the payment of treasury funds (see Chapter IX.A.3), and the issuance and redemption of JGSs (see Chapter IX.C.2 and 4).

The Bank introduced a computer network, the BOJ-NET Funds Transfer System, in 1988 to settle fund transactions through BOJ accounts, and has made efforts to improve it so as to ensure safer and more efficient settlement of such accounts (see Section D.1.d in this chapter).

c. Operation of the JGB Book-Entry System

Newly issued book-entry JGSs have been fully dematerialized since 2003 under the Act on Book-Entry Transfer of Company Bonds, etc. (hereafter, "the Act;" see Footnote 25). The Bank operates the JGB book-entry system as the central securities depository stipulated by the Act (see Chapter IX.C.3) for the following reasons: (1) JGSs are closely related to funds transactions and settlements, as they are often used as collateral for funds transactions and settlements in payment and settlement systems; and (2) the sale and purchase of JGSs are used in the Bank's market operations.

In 1994, the Bank introduced a delivery-versus-payment (DVP) mechanism for JGSs (see Section C.3.a in this chapter), placing certain conditions on the transfer of funds and the delivery of JGSs, whereby the delivery of securities occurs only if the corresponding transfer of funds occurs, and vice versa. In 2001, the Bank introduced real-time gross settlement (RTGS) as the sole settlement mode for JGSs and, at the same time, the SPDC function to achieve smooth DVP settlement of JGSs. The SPDC function enables financial institutions that purchase JGSs to receive intraday overdrafts from the Bank by using the JGSs that the institutions receive from the seller as collateral, and then use the funds to pay for such JGSs. This function is widely used, as it is an effective way to reduce the volume of liquidity necessary for settlement.

d. Operation of the BOJ-NET

The Bank operates the Bank of Japan Financial Network System (BOJ-NET) to provide efficient and safe online payment and settlement services for the transfer of BOJ account deposits, and the delivery of JGSs upon their sale and purchase. The Bank's Head Office and branches, as well as BOJ-NET participants are connected to the Bank's computer center in Tokyo by telecommunications lines, via which data are sent to the host computer for online processing. Participants were once able to access the BOJ-NET only with dedicated terminals, but they can now do so via general-purpose personal computers.

To ensure the safety of transfers of funds and delivery of JGSs via the BOJ-NET, important equipment for the BOJ-NET is duplicated as a measure against computer network failures. Such duplicated equipment consists of the host computers and communications control units at the computer center, the telecommunications lines between the Bank's Head Office and branches, and telecommunication companies' switching centers nearest to the Head Office and key branches. The Bank's computer center has backup facilities in Osaka. The computer center, with the support of the Osaka branch, always monitors the operations of the BOJ-NET to detect any system failures and to take necessary measures as promptly as possible if failures arise. The Bank also uses passwords, ID (identification) cards, and data encryption to ensure the security of the information exchanged over the network and prevent fraud.

The functions of the BOJ-NET include the BOJ-NET Funds Transfer System (started in 1988), which is the payment system, and the BOJ-NET JGB Services (started in 1990), which is the JGSs settlement system.[33] The BOJ-NET Funds Transfer System processes transactions in money markets and funds settlements related to JGS transactions by transferring funds between financial institutions' BOJ accounts. The system also processes funds settlements related to private-sector payment and settlement systems, such as the Domestic Funds Transfer System, the bill and check clearing system, and the FXYCS. The BOJ-NET JGB Services deal with settlements for JGS transactions, as well as auction, issuance, and payments at the time of JGS issuance via the online processing.

Since the operation of the BOJ-NET started, the Bank has continued its endeavor to improve BOJ-NET functions through various measures: the introduction of DVP settlement for JGS transactions (1994; see Section C.3.a in this chapter); the introduction of RTGS for the settlement through the BOJ

[33] The BOJ-NET Funds Transfer System operates from 9:00 to 19:00 JST. The BOJ-NET JGB Services operate from 9:00 to 16:30 JST.

accounts and the settlement of JGS transactions (2001); the introduction of DVP settlement for electronic CP, corporate bonds, investment trusts, and stocks by linking the BOJ-NET Funds Transfer System with securities settlement systems operated by the private sector (from 2001 through 2009; see Section C.3.b in this chapter); the introduction of liquidity-saving features to the BOJ-NET Funds Transfer System, and the migration of FXYCS payments to the RTGS system in the next-generation RTGS project (2008); and the migration of large-value payments equal to or larger than 100 million yen in the Zengin System to the RTGS system (scheduled for 2011). Meanwhile, the Bank has also endeavored to develop business continuity arrangements (see Section D.3 in this chapter), including the establishment of a backup center in Osaka in 1996.

In particular, the arrangement of settlement systems has changed drastically by the 2001 migration to RTGS of funds transfer through the BOJ accounts and the settlement for JGS transactions. The following explains the change in detail.

In the deferred net settlement system used before the introduction of RTGS, in order to process settlements between financial institutions, financial institutions holding current accounts at the Bank had to designate the times of settlement from designated time frames (9:00, 13:00, 15:00, or 17:00 JST) in their funds transfer instructions. Following this, the Bank accumulated funds transfer instructions (payment instructions) received from each financial institution until the designated time of settlement. Then, at the designated time, the Bank calculated the total amount of receipts of funds minus the total amount of payment of funds (the net settlement position) of each financial institution, and only net settlement positions were collectively debited from and credited to financial institutions' accounts at the Bank (see Figure 4-10 [1]).

However, in the deferred net settlement system, if a financial institution fails to settle a transaction at the designated time, other participants may not be able to settle their transactions, if expected to use the funds to be received from the failed participant for payments to other counterparties. There was a risk that settlements for transactions among many financial institutions as a whole might be stopped (see Chapter I.B.3 for a form of the materialization of systemic risk).

Therefore, from the perspective of reducing systemic risk, the Bank wholly shifted the settlement system for funds and JGSs through the BOJ accounts from the deferred net settlement system to the RTGS system in 2001. Under the RTGS system, as each settlement is processed individually on a real-time basis by the central bank (the Bank) receiving instructions from financial institutions, the direct influence of failure of one settlement is limited only to the counterparty (see Figure 4-10 [2]).

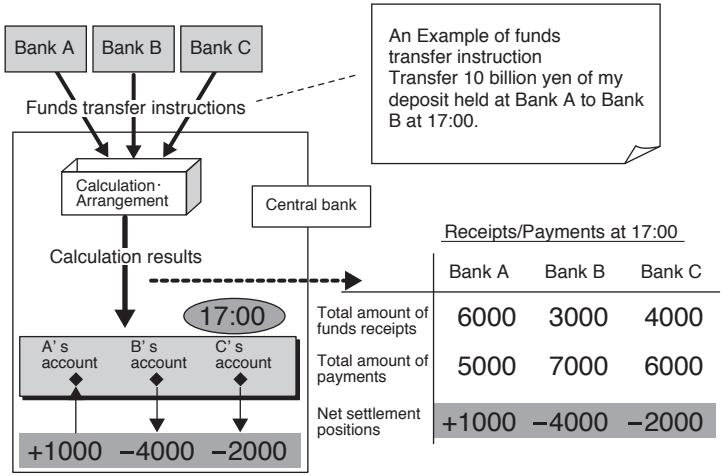
In the case of funds transfers in the deferred net settlement system, each financial institution only needed to hold funds amounting to the net settlement position in the BOJ account at the time of the settlement. However, in the case of funds transfers in the RTGS system, because each settlement is processed individually, each financial institution needs to keep more funds on hand (liquidity) for settlements during business hours. Therefore, at the time of the shift to the RTGS system in 2001, the Bank started to provide collateralized intraday overdrafts without charge to financial institutions, such as banks, that hold BOJ accounts. As a result, financial institutions holding BOJ accounts become able to raise funds from the Bank, within the value of the pooled collateral (see Footnote 34 in Chapter V) submitted to the Bank, at any time during business hours. Under the RTGS system, the participants can use the received funds for their following payments, so they have an incentive to delay their payments as much as possible. Due to this kind of incentive among the participants, the intraday settlement might become stagnant. Therefore, when RTGS was introduced, the market convention was improved in order to accelerate the settlement time.

The Bank is implementing the next-generation RTGS project, which consists of introducing liquidity-saving features to the BOJ-NET Funds Transfer System and of shifting large-value payments currently settled through private sector deferred net settlement systems (the FXYCS and the Domestic Funds Transfer System) to the BOJ-NET on an RTGS basis (see Box 2, "Next-Generation RTGS Project"). The next-generation RTGS project is expected to further improve safety and efficiency in the payment and settlement systems in Japan.

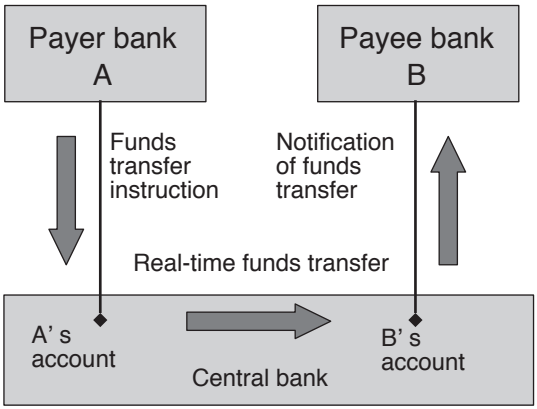
Moreover, the Bank is promoting the New BOJ-NET Project in order to enhance the flexibility and accessibility of the BOJ-NET as well as to ensure the future development of the BOJ-NET while reducing costs in the medium- to long-term period. The project is to keep up with the progress in straight-through processing (STP; see Box 4, "Payment and Settlement Terminology") in settlements that realizes seamless processing of the ordering, execution, matching, clearing, and settlement of financial transactions such as securities transactions and foreign exchange transactions, as well as keeping up with the enhanced linkage between payment and settlement systems across international borders. Basic concepts for the New BOJ-NET are: (1) introducing the latest information processing technology; (2) realizing high flexibility when faced with changes; and (3) realizing high accessibility. This project is planned to be completed in fiscal 2015.

Figure 4-10 Deferred Net Settlement and RTGS Settlement

(1) Deferred net settlement with designated settlement time of 17:00



(2) RTGS settlement



2. Oversight of private-sector payment and settlement systems

The Bank conducts oversight of private-sector payment and settlement systems, in addition to directly providing payment instruments and operating payment and settlement systems. The Bank has made public the objectives and policies of its oversight activities.[34] This section explains the following: the objectives, the significance, and the details of oversight activities; international cooperative oversight; and the initiatives conducted by the Bank.

a. Objectives and significance

The Bank conducts oversight of the payment and settlement system in order to ensure the safety and efficiency of the payment and settlement system in Japan. Oversight is defined as including the following activities: monitoring the institutional design, risk management, and operations of systems by the private sector; assessing the systems against established safety and efficiency objectives; and inducing changes for improvements where necessary.[35]

Payment and settlement systems involve many participants and collectively process a large number of settlement instructions. Therefore, if one participant in a system fails to settle its payment obligations, it could lead to a chain of settlement failures, involving other participants. Also, if the smooth operation of a payment and settlement system is interrupted by computer malfunctions, settlements of all system participants will be disrupted. The materialization of these incidents could possibly lead to a chain of adverse impacts on the settlement of financial institutions other than the system participants, or on other payment and settlement systems. This may be considered to be one form of systemic risk, which starts from a settlement failure (see Chapter I.B.3).

In the Bank's oversight, considering that payment and settlement systems operated by the private sector potentially pose systemic risk, the Bank, as a central bank, seeks to establish a common understanding with system operators and other stakeholders, and takes the initiative in improving their functions in cooperation with them. By doing so, the Bank aims to ensure safety and efficiency not only in individual systems but also in the overall payment and settlement arrangements

[34] See "Policy on Oversight of Payment and Settlement Systems" and "Policy on Oversight of Offshore Yen Payment Systems," both of which were released in May 2010. They are available on the Bank's website (http://www.boj.or.jp/en/index.htm).

[35] Among central banks and relevant parties of payment and settlement systems, the term "oversight" is established as referring to central bank activities such as monitoring, assessment, and inducing changes for improvements, related to various private-sector payment and settlement systems.

in Japan. Although the legal treatment of the oversight of the payment and settlement system differs depending on the country, central banks in other major countries conduct oversight of payment and settlement systems in a similar way.

b. Details of oversight activities

In light of the purpose of oversight, the Bank's oversight focuses on payment systems, securities settlement systems, and CCPs. Moreover, based on the size and characteristics of risks inherent in each payment and settlement system, the Bank conducts oversight particularly focused on payment and settlement systems that are highly likely to seriously affect the financial systems and economy in Japan through the materialization of systemic risk (systemically important systems).[36]

There are three steps in the specific oversight activities: (1) monitoring; (2) assessment; and (3) inducing changes for improvement. In monitoring, the Bank ascertains the performance and characteristics of payment and settlement systems subject to oversight. To do so, the Bank analyzes and monitors their institutional design, risk management, operations, and other aspects based on public and confidential information provided by the systems as well as through regular and ad-hoc dialogues with the system operators.

In the assessment of a payment and settlement system, based on the results of monitoring, the Bank judges whether the system is a systemically important system. As the benchmark for the oversight of systemically important systems, the Bank uses the internationally accepted standards (international standards) established by the Committee on Payment and Settlement Systems (CPSS), a standing committee located at the BIS,[37] and the International Organization of Securities Commissions (IOSCO).[38] The Bank evaluates whether the systems

[36] Whether a payment and settlement system is systemically important or not is determined based on a comprehensive consideration of the following factors: (1) the value and number of transactions settled; (2) the number and types of system participants; (3) the characteristics of transactions settled; (4) the availability of alternative systems or payment instruments; (5) the interdependencies with other systems; and (6) the relationship with the Bank.

[37] BIS is the international organization that serves to enhance the global financial cooperation and plays the role as the bank of central bank. Its head office is located in Basel, Switzerland.

[38] The standards include those set out in "Core Principles for Systemically Important Payment Systems," which the CPSS released in January 2001; "Recommendations for Securities Settlement Systems," which the CPSS and IOSCO jointly released in November 2001; and "Recommendations for Central Counterparties," which the CPSS and IOSCO jointly released in November 2004. The CPSS and IOSCO conduct comprehensive reviews of these standards based on lessons learned from the financial crisis since the autumn of 2008.

meet the requirements set out in the international standards, and makes its own assessment of the systems.

When issues requiring improvements in institutional design, risk management, and operations of payment and settlement systems by the private sector are identified as a result of an assessment, the Bank induces changes for improvements where necessary. At such a time, the Bank works to have regular dialogues with the system operators and participants. Through these intensive dialogues, the Bank seeks to establish a common understanding with the operators on these issues and solutions, and encourages them to take actions that will contribute to safe and efficient payment and settlement systems. For the oversight of the systems operated by the Bank itself, it also adopts the same international standards as those adopted for the oversight of private-sector payment and settlement systems, and releases the results of a self-assessment based on these standards.

Based on such oversight activities, the Bank releases the *Payment and Settlement Systems Report*,[39] which provides a wide range of explanations on developments in and issues regarding Japan's payment and settlement systems as well as on the global trends in payment and settlement systems.

c. International cooperative oversight

In recent years, with the globalization of financial transactions, there has been an emergence of yen payment systems that are operated by entities located outside Japan (offshore yen payment systems). Depending on the size and characteristics of the system, offshore yen payment systems could have a significant adverse impact on the safety and efficiency of payment arrangements in Japan. Therefore, in principle, the scope of the Bank's oversight covers offshore yen payment systems.

At the same time, the oversight of offshore payment systems entails issues that do not arise in the oversight of domestic payment systems. These include the issue of jurisdictional authority, as well as difficulties in obtaining information due to time differences and/or the geographical distance between the Bank and the system operator. With this in mind, the oversight of offshore payment systems is, in principle, conducted in the form of cooperative efforts involving the relevant central banks (the central banks in countries where the systems are located or central banks that issue eligible currencies). This type of oversight is called international cooperative oversight. The relevant central banks conduct international cooperative oversight of some offshore payment systems, and the

[39] The report is also available on the Bank's website.

Bank also takes part in such oversight (see Section D.4 in this chapter).

d. Initiatives conducted by the Bank

While continuing to conduct its hitherto established oversight procedures, the Bank has worked on various initiatives in order to improve the private-sector payment and settlement systems. For example, as a best practice, the international standards formulated by central banks encourage payment systems providing deferred net settlement to prepare capabilities to ensure timely completion of daily settlements in the event of an inability to settle by the participants with the two largest settlement obligations. This includes developing arrangements for obtaining collateral or third party guarantees, contingency liquidity arrangements,[40] and loss-sharing arrangements.[41] Based on this fact, the Bank has encouraged the development of risk management policies that fulfill the best practices for the Domestic Funds Transfer System and FXYCS.

Regarding securities settlements, the Bank introduced the DVP settlement mechanism for JGS settlement processed through the BOJ-NET, in which the Bank itself is the central securities depository. The Bank also took part in the detailed discussion to design the systems for electronic CP, corporate bonds, stocks, and investment trusts, while supporting the realization of DVP settlement by connecting the BOJ-NET Funds Transfer System to private-sector securities settlement systems. In addition, when CCPs for the stocks and JGSs were established, the Bank provided advice on what the institutional design and risk management should be, based on global trends and international standards. In recent years, based on the issues recognized in the financial crisis since the Lehman shock in the autumn of 2008, the Bank has discussed and examined issues with operators of private-sector payment and settlement systems and market participants, regarding, for example, the shortening of the JGS settlement cycle, enhancement of functions of CCPs, and increased adoption of the fails practice (see Box 3, "Fails Practice for Bond Trading").

[40] Contingency liquidity arrangements: a mechanism activated in the event of failure-to-settle by a system participant in which the system operator obtains funds, either through borrowing from banks or through liquidation of collateral securities, and makes payments instead of the participant in default, thereby preventing a chain of settlement failures among other participants.

[41] Loss-sharing arrangements: a mechanism to prevent the default of a system operator in the event of participants' failure to settle by covering the loss suffered by the system operator with the collateral pledged in advance by the failing participants or through contributions from other participants.

3. Enhancement of business continuity arrangements

This section explains the enhancement of business continuity arrangements within the Bank's business related to payment and settlement. The Bank enhances its own business continuity arrangements, while supporting the improvement of the business continuity arrangements in financial institutions and financial markets.

a. Business continuity arrangements at the Bank

Payment and settlement systems are infrastructures that are important for the economy and society of a country, and it is necessary to adequately develop business continuity arrangements in advance in order to prepare for the occurrence of various incidents. Various kinds of incidents are anticipated, including natural disasters such as earthquakes, floods and storms, technical disasters such as system failure, man-made disasters such as terrorist attacks, and an outbreak of infectious diseases such as new types of influenza. As a major player in the payment and settlement systems, the Bank has worked for a long time to adequately improve its business continuity arrangements, keeping in mind the possibility of various incidents occurring, in order to minimize the impact of a disaster on its business operations, and to smoothly carry out its obligations as a central bank.

Specifically, the Bank prepares for an emergency by: (1) specifying the central bank's business operations that should be continued in the event of a disaster and its aftermath; (2) establishing a disaster management team; (3) securing personnel responsible for initiating disaster response procedures and personnel for carrying out critical business operations; (4) preparing procedures to smoothly ensure that means for communication are available in case of a disaster; (5) improving the backup functions for the Head Office at Nihonbashi in Tokyo and the computer systems; and (6) conducting regular testing.

b. Business continuity arrangements at financial institutions and financial markets

In Japan, improvements in business continuity arrangements at each financial institution and private-sector payment and settlement system are also indispensable for establishing robust financial systems, and payment and settlement systems. Therefore, the Bank monitors developments in business continuity arrangements in financial institutions and private-sector payment and settlement systems through on-site examinations, off-site monitoring, and oversight, and

induces improvements in these arrangements whenever necessary. The Bank also works to disseminate knowledge and support initiatives among the relevant parties by holding various seminars and releasing papers and survey results. Moreover, market participants have been developing an information-sharing arrangement in preparation for a disaster and improving arrangements to discuss and provide notice of changes in market practices. The Bank also supports these initiatives.

4. International cooperation

The Bank endeavors to promote international cooperation related to payment and settlement systems. It participates in various international conferences and international cooperative oversight activities, such as those of global payment and settlement systems.

First, the Bank exchanges opinions and makes global rules on payment and settlement with other participants in the CPSS, and the Working Group on Payment and Settlement Systems at the Executives' Meeting of East Asia Pacific Central Banks (EMEAP; see Chapter VIII). The CPSS analyzes the developments in payment and settlement systems in each country, and the cross-border multicurrency settlement schemes. The CPSS also examines the policy issues related to the systems and schemes, and establishes global standards that payment and settlement systems must fulfill. The standard for the risk management of the payment and settlement systems established by the CPSS (see Footnote 38) is globally recognized, and the Bank also follows this standard in its conduct of oversight.

The Bank also cooperates with the related foreign central banks to conduct oversight of CLS, which is a cross-border payment system (see Section C.2.d in this chapter), and SWIFT, which provides services related to settlements (see Footnote 17).[42]

[42] Strictly speaking, SWIFT is not a payment and settlement system. However, it is widely used by financial institutions around the world, and any disruption in the operations of this system may globally influence payment and settlement systems. Therefore, in order to improve internal control and risk management systems, the relevant central banks conduct international cooperative oversight of SWIFT.

Box 1 Number of Institutions Holding Current Account Deposits at the Bank of Japan (BOJ Account Holders)

As of the end of fiscal 2009, the Bank provided current account services to 556 financial institutions, including banks, *shinkin* banks, and securities companies. The Bank selects BOJ account holders, based on the "Criteria for Parties Eligible to Hold Current Accounts with the Bank and That Have Access to the Bank's Lending,"[1] from the perspective of whether providing the services to the applicant institution will contribute to achieving the objectives of the Bank. Specifically, the Bank decides whether an institution is eligible based on the following criteria: (1) the institution should play a major role in funds or securities settlement or as an intermediary in money markets; (2) it should ensure the appropriateness of its businesses and management structure, and of its operational framework; and (3) it should conclude an on-site examination contract with the Bank (see Chapter VI.F.2).

Table for Box 1 BOJ Account Holders by Business Category (as of the End of Fiscal 2009)

Banks[2]	Trust banks	Foreign banks	*Shinkin* banks	Securities companies	Others[3]	Total
126	19	56	263	39	53	556

Notes: 1. See the Bank's website for details of the criteria (available only in Japanese).
2. Excluding trust banks and foreign banks.
3. Including the central institutions for cooperative financial institutions and *tanshi* companies (see Box 1 for Chapter V, "Money Markets and the Call Market").

Box 2 Next-Generation RTGS Project

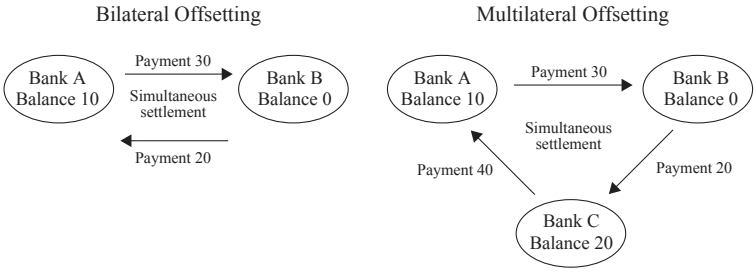
In 2001, the Bank of Japan introduced real-time gross settlement (RTGS) to the Bank of Japan Financial Network System (BOJ-NET) Funds Transfer System. The Bank has advanced the next-generation RTGS project in order to further enhance the efficiency and safety of all the large-value payment and settlement systems in Japan.

The project consists of the following two core components: (1) introducing liquidity-saving features to the BOJ-NET; and (2) shifting large-value payments currently settled through private-sector deferred net settlement systems (the Foreign Exchange Yen Clearing System and the Domestic Funds Transfer System) to the BOJ-NET on an RTGS basis with liquidity-saving features. The project has been implemented in two phases, considering the burden on the participants and the risks associated with system development. Phase 1, which began in October 2008, achieved the first component, "introducing liquidity-saving features to the BOJ-NET," and partly achieved the second, "incorporating the Foreign Exchange Yen Clearing System payments into the BOJ-NET."

Liquidity-saving features allow each financial institution to economize on the use of liquidity, which is achieved by a combination of queuing and offsetting facilities. The queuing facility allows payment instructions to be held pending within the system. In the previous BOJ-NET Funds Transfer System, if a participant did not have sufficient funds to complete a transaction when it sent a payment instruction to the Bank, it was rejected by the system. In the new BOJ-NET Funds Transfer System, a payment instruction that does not satisfy the conditions for settlement will be placed in the central queue for each financial institution. The offsetting facility searches among the newly entered and queued payment instructions for a bilateral or multilateral set of instructions that can be settled simultaneously,[1] and settles those instructions.

The introduction of liquidity-saving features reduces the amount of funds and collateral that individual financial institutions need to prepare for settlement. It also encourages swift payment by effectively preventing gridlock.[2] The following illustrates examples of settlement with liquidity-saving features. In the examples, payment instructions cannot be settled individually but can be settled simultaneously when taking into account incoming payments as a source of liquidity. In effect, it is expected to enhance the overall efficiency in the system by achieving prompt settlements with less liquidity. Prompt settlements also contribute to the reduction of intraday unsettled balances (settlement

exposure), which enhances the safety of large-value payments.



In Phase 2 of the next-generation RTGS project, the Bank will implement the shift of large-value payments settled through the Domestic Funds Transfer System to RTGS in November 2011 in cooperation with Zengin-Net (Japanese Banks' Payment Clearing Network), which operates the Zengin System. That is, large-value payments of at least 100 million yen made through the Domestic Funds Transfer System will be settled by RTGS. The large-value payments account for less than 1 percent of the payments processed in the Domestic Funds Transfer System in terms of the number of payments, but account for around 70 percent in terms of value. The introduction of RTGS for large-value payments enables a reduction of the intraday unsettled balances; therefore, further enhancement of the safety of large-value payments in Japan is expected.

Notes: 1. "The set of instructions that can be settled simultaneously" is a combination of payment instructions with which, considering not only funds on hand but also incoming payments anticipated from a counterparty as a source of liquidity, one's payments can be settled simultaneously with the receipt of incoming payments from the counterparty.
2. "Gridlock" refers to a situation in which an unsettled balance for each participant is accumulated because participants hold back their payments in order to economize the use of their own liquidity by relying on the incoming funds from other participants.

Box 3 Fails Practice for Bond Trading

A "fail" is a situation where, in the settlement of securities transactions, a party cannot receive securities from the delivering party as scheduled even after the due date, for reasons other than the creditworthiness of the parties. The "fails practice" only defines general processing procedures to be taken by parties when a fail occurs, and in principle, does not regard an uncompleted delivery of bonds in itself as a default (and so does not cancel the contract) unless a special agreement is concluded.

Japan's fails practice for government securities trading was introduced in January 2001, when the real-time gross settlement (RTGS) system was introduced for Japanese government securities. It had been recognized that, in certain cases, a fail is unavoidable in order to ensure market liquidity and to process smooth settlement, because settlement delays were inevitable under the RTGS system due to the increase in the settlement operations and chain of transactions. However, when many fails occurred triggered by the failure of Lehman Brothers in September 2008, many market participants did not accept fails, and this resulted in deterioration of the market function, such as delays in government bonds settlement, and a liquidity shortage in the bond and repo markets. From these experiences, the need to accept fails has been increasingly acknowledged among market participants and they have conducted revisions to the fails practice.

Box 4 Payment and Settlement Terminology

The following explains the points of the technical terms related to payment and settlement in this chapter.

CCP (central counterparty)
A CCP is the entity that clears transactions, such as the sale and purchase of securities contracted among many relevant counterparties. The clearing is conducted by replacing rights and obligations between the seller and the buyer with those between the seller and the central counterparty, and those between the central counterparty and the buyer (see Section C.4 in this chapter).

DVP (delivery versus payment)
DVP is a link between a securities transfer system and a funds transfer system that ensures that delivery occurs if, and only if, payment occurs. It prevents the risk of payment for a transaction not being conducted even though the JGSs are delivered, and vice versa (see Section C.3.a in this chapter).

SPDC (simultaneous processing of DVP and collateralization) function
The SPDC function enables financial institutions that purchase JGSs to receive intraday overdrafts from the Bank by using the JGSs that the institutions receive from the seller as collateral, and then to use the funds to pay for such JGSs. This function is used to reduce the volume of liquidity necessary for settlement, and to conduct smooth JGS settlement on a DVP basis (see Section D.1.c in this chapter).

PVP (payment versus payment)
In PVP, by placing certain conditions on the transfer of both currencies to be settled, the transfer of one currency only occurs if the transfer of the counterparty currency takes place. It eliminates a risk, for example, of one party not being able to receive dollars even though it paid yen (see Section C.2.d in this chapter).

RTGS (real-time gross settlement)
The RTGS system is a low systemic risk settlement method in which, because each settlement is processed individually on a real-time basis, the direct influence of a failure of one settlement is limited only to the counterparty. The concept paired with RTGS is deferred net settlement (see Section D.1.d in this chapter).

STP (straight-through processing)
STP realizes seamless automated processing of the ordering, execution, matching, clearing, and settlement of financial transactions, such as securities transactions and foreign exchange transactions. STP is facilitated by connecting business operation systems, using standardized message formats (see Section D.1.d in this chapter).

Deferred net settlement
Deferred net settlement is a method in which settlements are not individually processed on a real-time basis, but are processed once or several times a day by debiting and crediting net settlement positions (total amount of receipt of funds minus total amount of payment of funds, both of which are accumulated until a designated time of settlement) (see Section D.1.d in this chapter).