CHAPTER XI

The Clearing and Settlement System

1. Key Features of JSCC

Securities trading executed on the exchanges is cleared and settled through the Japan Securities Clearing Corporation (JSCC). Since the establishment of JSCC in January 2003, all clearing and settlement for securities trading carried out on the exchanges have been unified under the JSCC.

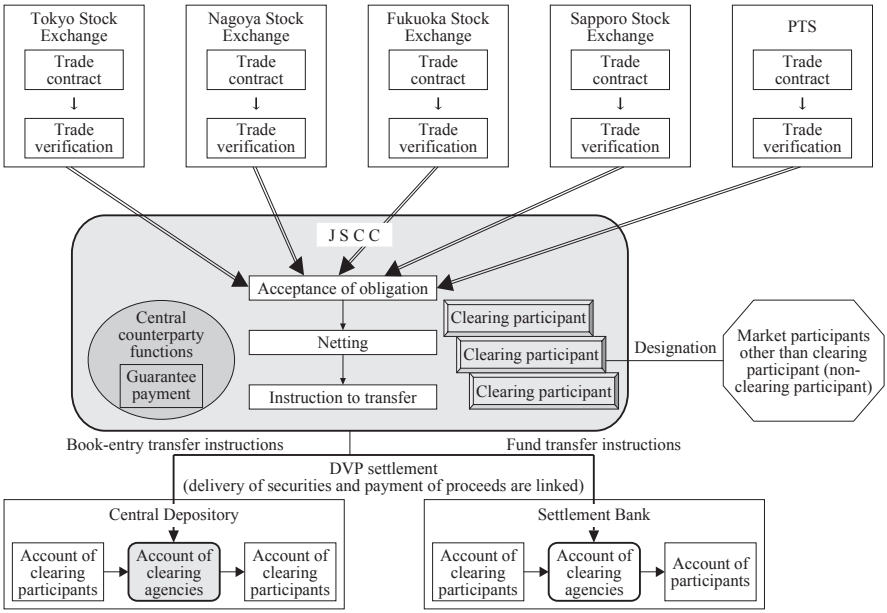
The main functions performed by the JSCC are (1) to assume obligations, (2) to net shares and funds to transfer, (3) to instruct book-entry transfer, and (4) to guarantee settlement.

(1) Assuming obligations
Upon the execution of a transaction on a stock exchange, the JSCC assumes the obligations of both the buyer and the seller against the other party (for the seller to deliver the securities sold and for the buyer to make payment for them) and, at the same time, acquires claims corresponding to both obligations. Thus, the JSCC takes up the role as the counterparty for claims and obligations. It helps enhance the efficiency of settlement operations on the part of clearing participants (those who are qualified for handling clearing and settling securities transactions through the JSCC) because the JSCC is the single settlement counterparty.

(2) Netting
The JSCC mutually offsets (nets) volumes bought and sold, and proceeds and payments, and settles the net balance. This streamlines fund payments and securities transfers required in the settlement procedures.

(3) Book-entry transfer instructions
The JSCC, after determining the settlement quantities through netting, instructs the Japan Securities Depository Center, the settlement organization, to make transfers of securities, and the Bank of Japan or a fund settlement bank designated by the JSCC to make transfers of funds.

Chart XI-1. Delivery and Settlement Using JSCC (Exchange Transactions)

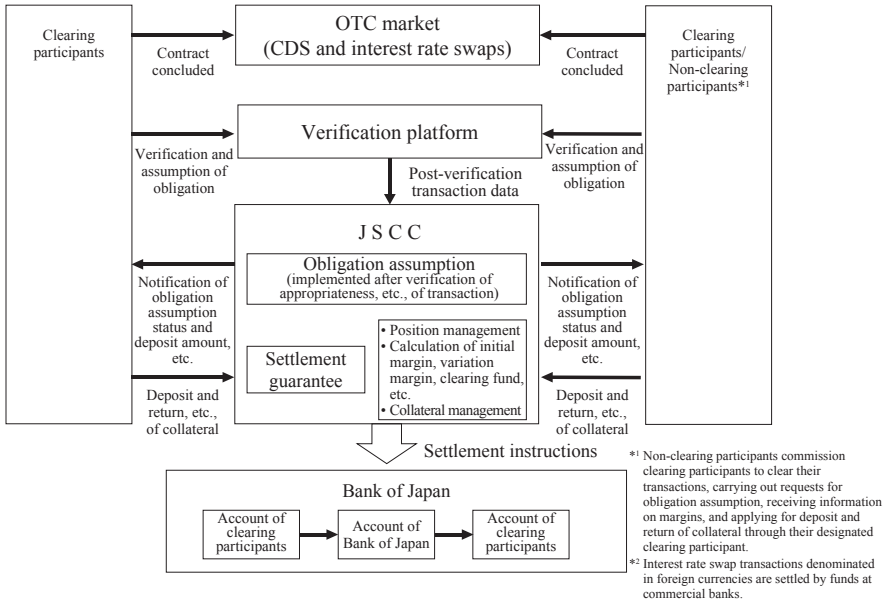


* The Clearing Agency is referred to as the Central Counter Party (CCP). It stands between the buyer and seller and acts as the settlement counterparty for both parties.
* Transactions by non-clearing participants (market participants other than clearing participants) are settled by clearing participants designated in advance by the non-clearing participants.

(4) Making settlement guarantees

Even in the case of a clearing participant failing to settle a trade, the JSCC performs and guarantees the settlement as the settlement counterparty against any other clearing participant. Based on this settlement guarantee, parties can trade securities without being concerned about settlement default risk on the part of the original trade counterparties. Since its inception, the JSCC has expanded the scope of its clearing services, adding securities traded on proprietary trading systems (PTSs) to its clearing services in July 2010. Moreover, after the global financial crisis, regulatory reforms of OTC derivatives trading have advanced around the world, with countries requiring standardized OTC derivatives transactions to be cleared through a central clearing house (central counterparty clearing). The JSCC commenced clearing and settlement services for credit default swap (CDS) transactions in July 2011 and for interest rate swap transactions in October 2012. In October 2013, the JSCC merged with the Japan Government Bond Clearing Corporation and thereby

Chart XI-2. Delivery and Settlement Using JSCC (OTC Derivatives Transactions)



added OTC JGB transaction clearing and settlement services. Then, alongside the transformation of Japan Exchange Group into a comprehensive exchange, the merger of JSCC and the Japan Commodity Clearing House in July 2020 enabled the start of clearing services for commodity derivatives transactions, including precious metals.

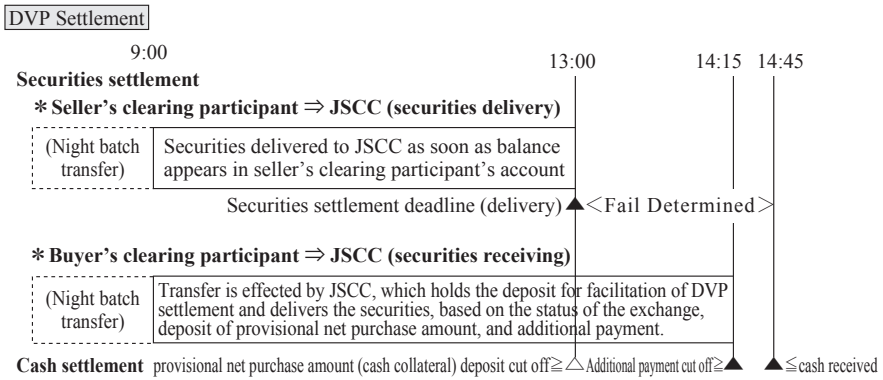
2. DVP Settlement

With a view to eliminating principal risk, one of the major settlement risks (the risk of failing to receive securities or funds after delivering the corresponding securities or funds), the JSCC has adopted a delivery-versus-payment (DVP) settlement system for the settlement of shares and other securities.

DVP settlement links the exchange of securities and funds, whereby securities are delivered on the condition that payment is made and vice versa. This ensures that no principal loss occurs even if a settlement default occurs.

DVP settlement by the JSCC takes place on the third business day after the trade date (T+2) for transactions in shares and convertible bonds with new

Chart XI-3. DVP Settlement Timetable



Note: The receiving of securities by the buyer's clearing participant is carried out in a way that eliminates the risk of principal default versus the cash payer JSCC through nonperformance of obligations or of delivery of collateral.

share acquisition rights (CBs) handled by the Japan Securities Depository Center on exchanges and PTSs for which the JSCC assumes obligations.

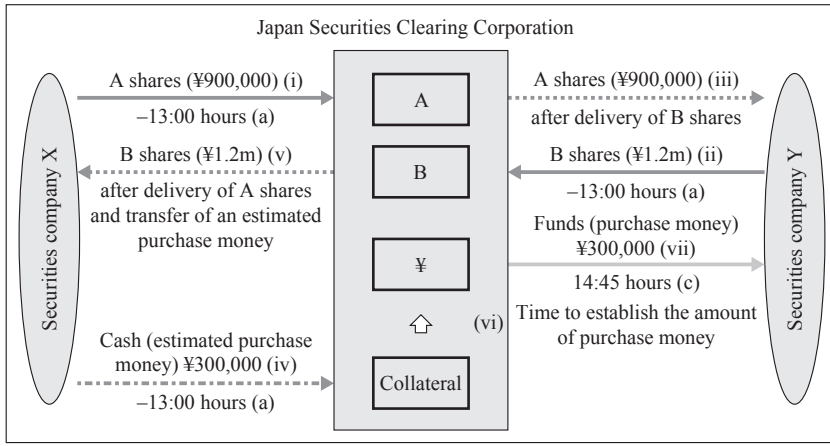
Under the DVP settlement system, a buyer basically cannot take delivery of shares until such time as payment from them (via fund transfer) has been verified. This, however, could undermine the overall efficiency of settlement, including payment and delivery between clearing participants and customers.

Therefore, JSCC has established a mechanism for early receipt of securities. It allows the buy-side clearing participant to receive securities prior to the completion of funds settlement on deposit of cash or securities equivalent to the value of the securities to be received as collateral.

Also, in the event that a sell-side clearing participant should fail to deliver a security by the settlement deadline on the settlement date (known as a "fail"), the JSCC will carry over the delivery of and payment for the securities to the following day, with delivery and payment settlement netted off against delivery and payment of securities scheduled for that day.

However, since settlement is in principle due on the settlement date, there are mechanisms in place to prevent repeated fails, such as late payment penalties against clearing participants if a fail occurs or a buy-in (right of a participant who has suffered a fail to request compulsory purchase and delivery of the securities concerned).

Chart XI-4. The DVP Scheme (normal setllement)



Deadline for settlement:
a. Deadline for the delivery of securities and the deposit of the estimated purchase money (cash collateral): 13:00
b. Deadline for the payment of purchase money: 14:15
c. Time for the receipt of purchase money: 14:45

(i) Securities company X delivers A shares while (ii) securities company Y delivers B shares to JSCC by 13:00.
(iii) Securities company Y can receive A shares after delivering B shares to JSCC.
(iv) Securities company X deposits the estimated purchase money to JSCC by 13:00.
(v) Securities company X can receive B shares after (i) and (iv) have been executed.
(vi) JSCC appropriates the estimated purchase money for the payment relating to funds settlement at the time the amount of the purchase money is finalized.
(vii) Securities company Y receives the funds (purchase money) at 14:45.

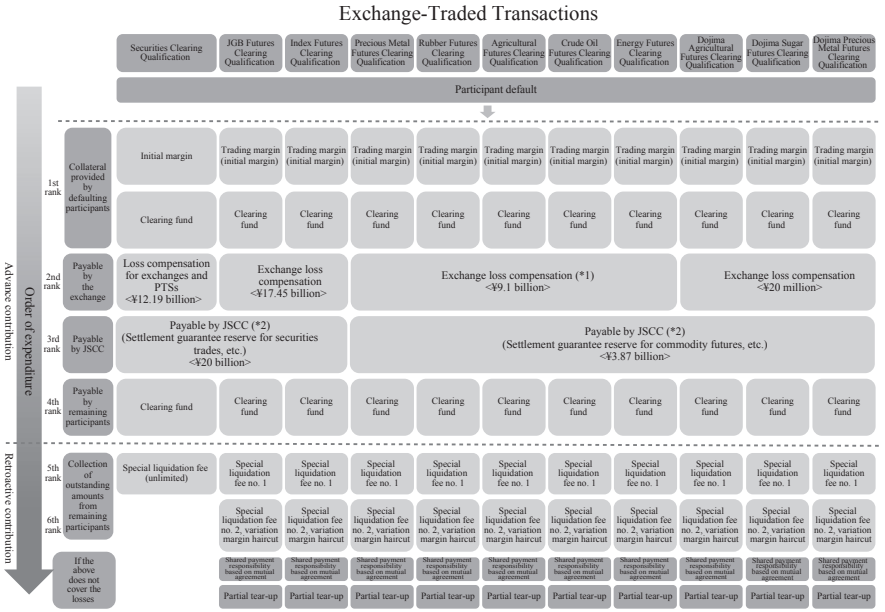
3. Risk Management System

Here are some examples of the risk management systems adopted by JSCC.

(1) Management of Clearing participants

As a clearing organization, JSCC assumes and bears the debt obligations and is therefore exposed to the credit risk of individual counterparties. Therefore, it requires clearing participants to have high creditworthiness. Accordingly, the JSCC has established eligibility requirements (eligibility and maintenance criteria) for becoming a clearing participant, and any entity seeking to become a clearing participant must apply to the JSCC for clearing qualification and approval. Furthermore, JSCC continuously monitors the financial health, and soundness of management and operational structures of the clearing participants, ensuring that they comply with the requirements for maintaining

Chart XI-5-1. Composition and order of use of financial resources for loss compensation for clearing operations



their clearing qualification for all clearing operations.

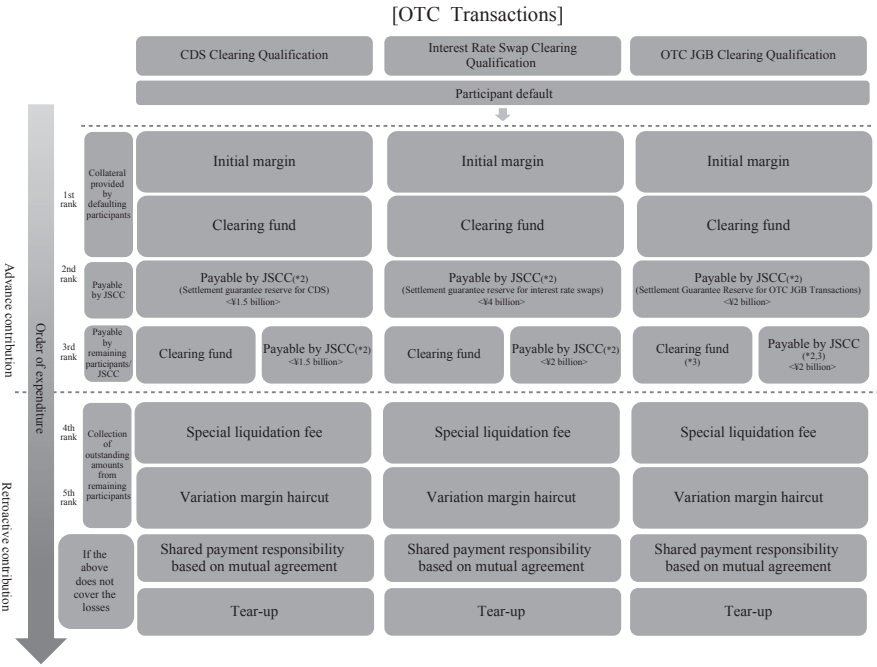
(2) Margin

JSCC requires clearing participants to deposit margin in accordance with the characteristics of each clearing operation. There are two types of margin: variable margin and initial margin. These serve as collateral provided at the client's own risk to cover current exposure (market value of the underlying transaction adjusted to its current value) and potential future exposure (estimated losses that may arise from future price fluctuations in the underlying transaction) under normal market conditions. The positions in each clearing transaction and market fluctuations are the primary determinants of the required amount of margin. It should be noted that for some products, variable margin is settled with participants and investors in the form of mark-to-market adjustments.

(3) Clearing fund

As an additional financial resource, JSCC requires each clearing participant to deposit a clearing fund for each clearing operation, covering potential fu-

Chart XI-5-2. Composition and order of use of financial resources for loss compensation for clearing operations



(*1) Out of ¥9.1 billion, ¥7 billion represents the amount for which OSE compensates losses arising from transactions other than those covered by the Energy Futures Clearing Qualification. (For a set period starting in June 2023).

(*2) The amount of the settlement guarantee reserve payable by JSCC and the method for replenishing it when depleted are specified in the rules governing each clearing operation.

(*3) Losses arising from clearing of OTC JGB transactions (covered by the clearing fund and special clearing fees of non-defaulting clearing participants) are allocated by distinguishing between the portion of the loss payable by clearing participants that are trust banks based on transactions related to trust activities and the remaining portion. Losses are allocated to the trust's share of the liability based on the proportion of the trust's transactions, on an original transaction basis, relative to the total positions of the defaulting participants.

ture exposures in the event that multiple clearing participants fail under extreme but realistic market conditions.

(4) Loss compensation system

While the JSCC manages the credit risk of clearing participants to prevent their default, it has established a loss compensation system for each clearing operation to compensate for potential losses that may occur in the unlikely event that a clearing participant defaults. The basic approach for designing the loss compensation system is to first provide compensation through the "defaulter pays" principle, funded by the defaulting clearing participant's resources (such as margin), and then through the "survivor pays" principle, funded by the resources of the non-defaulting clearing participants (such as the clearing fund).

4. The Book-Entry Transfer System for Shares, Etc. (1)

Administration of shareholder ownership rights or similar rights of listed companies are managed through the securities book-entry transfer system operated by the Japan Securities Depository Center, Inc. (JASDEC), the book-entry transfer institution, in the book-entry account register (electronic ledgers) maintained by JASDEC and account management institutions (such as securities firms and banks).

Rights relating to shares and other securities of listed companies are managed through the book-entry transfer system operated by the Japan Securities Depository Center, Inc. (JASDEC), the book-entry transfer institution, in the book-entry account register (electronic ledgers) maintained by JASDEC and account management institutions (such as securities firms and banks).

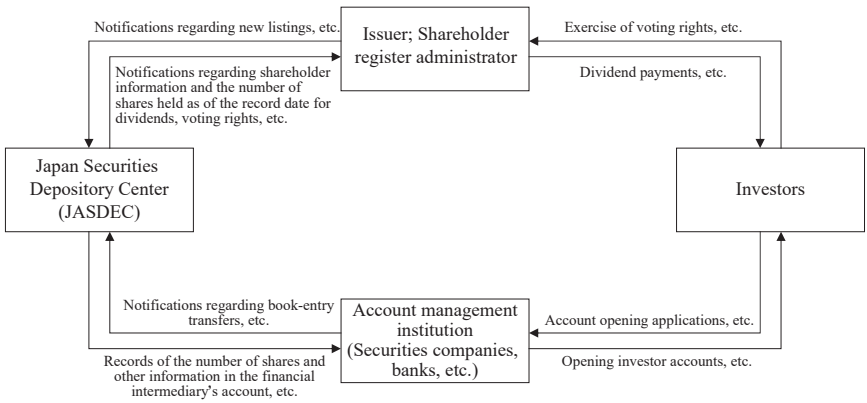
In October 1991, pursuant to the Act on the Retainment and Transfer of Share Certificates, JASDEC (which was a foundation at the time) launched the "Book-Entry Transfer System for Shares and Other Securities." This system was based on the existence of physical stock certificates and operated through their deposit with JASDEC, but a significant number of stock certificates were held outside the system, which posed challenges regarding the issuance and management of these certificates. Subsequently, in January 2009, the book-entry transfer system, which does not rely on the issue of physical certificates, was launched, marking a transition from physical to electronic management (hereinafter referred to as "securities dematerialization").

Securities eligible for the book-entry transfer system include shares, share acquisition rights, convertible bonds with share acquisition rights (CBs), investment units (REITs, etc.), preferred equity contributions, beneficiary interests in investment trusts (ETFs), and beneficiary interests in trust certificates

Table XI-1. Major Changes in the System Before & After Implementation of Electronic Share Certificate System

	Securities Custody and Transfer System (before dematerialization)	The Book-Entry Transfer System for Shares, Etc. (Current)
Share certificates	• Paper share certificates (physical certificates) exist • Share certificates deposited with JASDEC are centrally stored at JASDEC and issued to shareholders upon request • Shareholders who did not use the Book-Entry System kept their share certificates themselves	• The system is fully digital, with no physical certificates • All listed shares are handled through the Book-Entry System
Attribution of rights	• Under the Book-Entry System, a person recorded in the book-entry account register is deemed to be the holder of the share certificates. • Outside the Book-Entry System, the person who physically holds the share certificates (possessor) is deemed to be the shareholder.	• A person recorded in the book-entry account registeris presumed to be the shareholder
Form of shareholder management	• Dual management using both the shareholder register and a register of beneficial owners to identify persons holding shareholder rights within the Book-Entry System • The shareholder register administrator consolidates records for duplicate shareholders (name matching)	• Centralized management based on the shareholder register • The Japan Securities Depository Center performs name-based aggregation and notifies the shareholder register administrator
Transfer of stocks	• Under Book-Entry System, transfers are made by bookentry transfer • Outside the Book-Entry System, transfers are made by the delivery of the certificate.	• All transfers are made by book-entry transfer

Chart XI-6. Relationship with Users in the Book-Entry Transfer System for Shares, etc.



(JDRs), among others.

The main benefits expected from transition to the electronic book-entry transfer system include:

(1) Shareholders can eliminate the risks of loss, theft, or forgery of stock certificates associated with keeping physical certificates, and there is no need to submit stock certificates to the issuing company or other parties in the event of a merger or a change in the company's name.

(2) Issuers can save costs associated with issuance, such as printing costs and stamp duties, as well as the costs of collecting and issuing share certificates in connection with corporate reorganizations (such as corporate mergers, exchanges and share transfers).

(3) Securities companies can reduce the risks and costs associated with the storage and transport of certificates.

5. The Book-Entry Transfer System for Shares, Etc. (2)

Shares for book-entry transfer are managed within a hierarchical structure consisting of JASDEC and account management institutions (securities companies, banks, etc.). JASDEC opens accounts (in the name of the account managing institution) on behalf of the account managing institutions (see diagram on the right). Account management institutions open accounts for investors (accounts in the name of general customers (investors)) and accounts for other account management institutions (accounts in the name of the account management institution). In the book-entry transfer system, any account management institution that is positioned directly below JASDEC is referred to as a "direct account management institution," while any account management institution below a direct account management institution is referred to as an "indirect account management institution."

Accounts held in the name of the account management institution are classified as "proprietary accounts" and "customer accounts." A proprietary account held in the name of an account management institution in which rights to shares owned by the institution are recorded. Customer accounts are accounts that record the rights held by the customers (investors) of the account management institution, its subordinate institutions, and the customers of those subordinate institutions.

The number of shares recorded in customer accounts under the name of the account management institution matches the total number of shares recorded in customer accounts (including those under the names of subordinate account management institutions) in the book-entry account register of that account management institution.

The main procedures related to account entries include: (1) new record

Chart XI-7. Sample book-entry account register

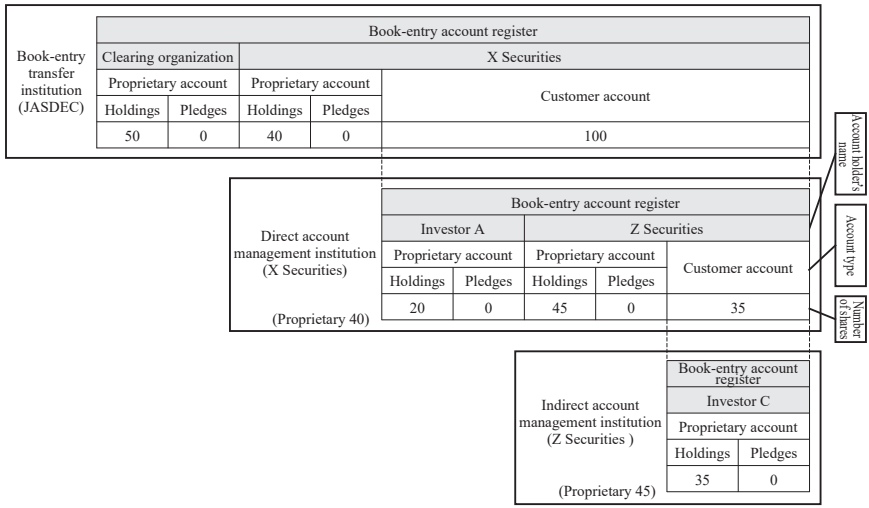
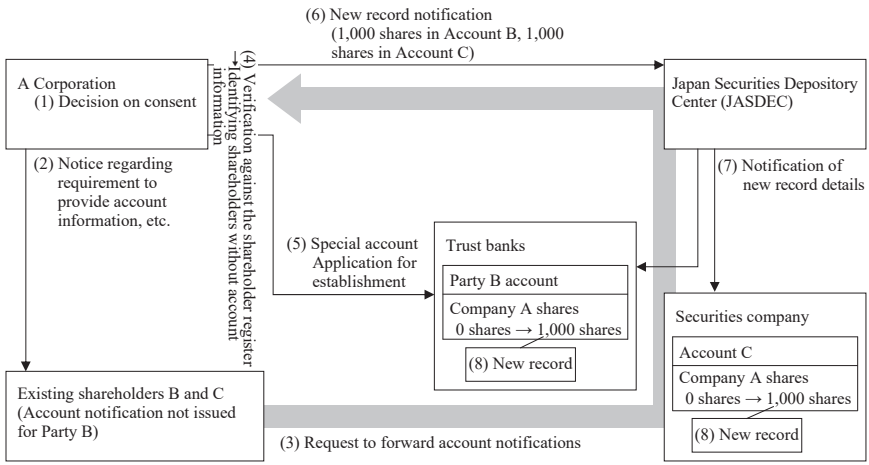


Chart XI-8. Overview of the new record procedure



procedures and (2) transfer procedures.

(1) New record procedure

This procedure is carried out when an issuing company lists its shares on a stock exchange for the first time, for example. As shown in the figure on the

right, existing shareholders of newly listed shares submit an account notification request to the issuing company to notify it of the accounts they have opened in advance with securities firms and other institutions for the purpose of receiving records of their shares. The issuing company submits a new record notification based on this notification. For shareholders who did not submit an account notification request, their shares are recorded in a special account opened by a trust bank or similar institution (administrator of the shareholder register) designated by the issuing company.

(2) Transfer procedure
The transfer of the shares is not valid unless the book-entry transfer application results in an increase in the number of shares recorded in the holding column of the account of the book-entry share receiver (transferee). This application is submitted by the investor (transferor), whose holding is reduced as a result of the transfer, to the account management institution positioned directly above (the account management institution where the investor's account is held).

6. The Book-Entry Transfer System for Shares, Etc. (3)

Key events concerning shareholders under the book-entry transfer system for shares, etc. include: (1) general shareholder notifications, (2) individual shareholder notifications, (3) requests by the issuing company for information from the book-entry account register.

(1) General shareholder notification
The issuing company's shareholder register is updated in accordance with general shareholder notifications. A general shareholder notification is a notice sent by JASDEC to the issuing company, containing the details recorded in the book-entry account register of investors who are shareholders or similar parties as of the record date (such as name, address, and the number of shares recorded in the account).

In preparation for sending general shareholder notifications, JASDEC is notified in advance by account management institutions regarding investors' names and other necessary details, and manages them through name matching and other processes.

There are two types of general shareholder notification: those issued on a date specified by law (such as a record date set by the company) and those issued upon the request of the issuing company (a valid reason is required for such requests).

Chart XI-9. Sample general shareholder notification

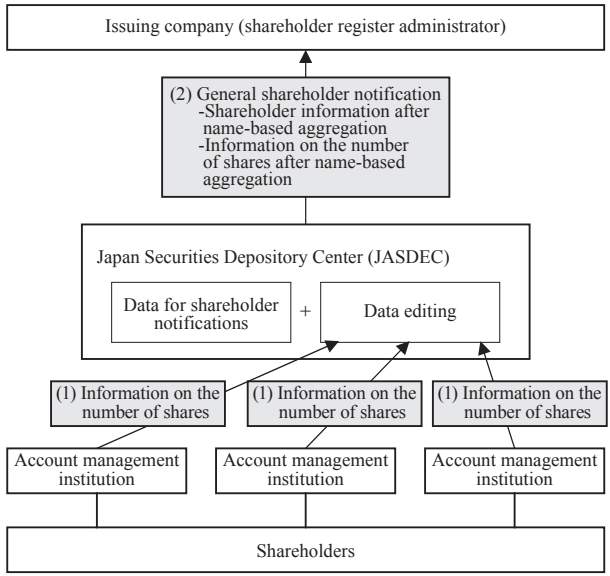
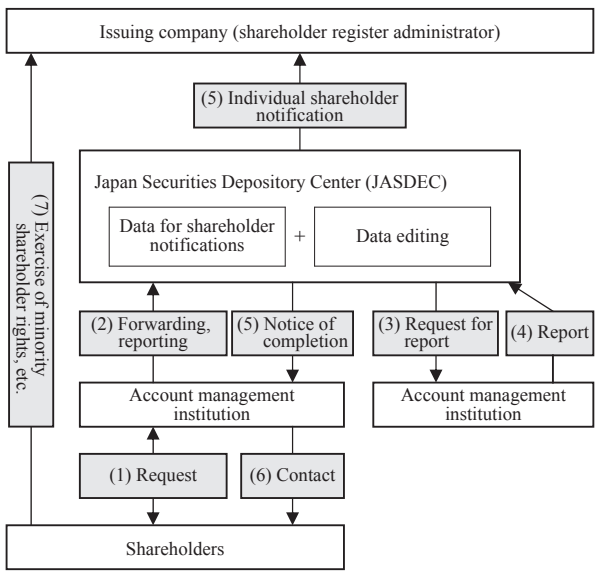


Chart XI-10. Sample individual shareholder notice



(2) Individual shareholder notification

If any shareholder intends to exercise minority shareholder rights, an individual shareholder notification must be provided to the issuing company in advance (these rights must be exercised within four weeks of the notice). An individual shareholder notification is a notice issued by JASDEC to the issuing company, based on a request (through the institution directly above) from an investor, as a shareholder intending to exercise minority shareholder rights or similar rights, regarding the details recorded in the book-entry account register pertaining to that shareholder (such as name or corporate name, address, number of shares recorded in the account, and history of increases and decreases in the number of shares).

(3) Request by the issuing company for information from the book-entry account register

Any issuing company may request the account management institution where a shareholder's account is held to provide information regarding the details recorded in the book-entry account register (such as name, address, number of shares, and history of increases and decreases in the number of shares). There must be a justifiable reason for such a request.

This request can be made through JASDEC, and depending on the need for timely information, the issuing company can choose to receive either "full information" (information on all account management institutions that have opened accounts for the investor in question) or "partial information" (information on the book-entry account register of the direct account management institution among any account management institutions that have opened accounts for the investor).