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The Payment System

Chapter 7 The Payment System

The payment system is an infrastructure essential for financial stability and development. Through this system, fund transfers, account management, and market information are integrated into one. This chapter begins with a brief overview on the general concept and operation of the payment system. This is followed by a detailed profile of Taiwan's payment systems, including the Check Clearing System and related credit management, the FISC Nationwide Interbank Remittance System, the CBC Interbank Funds-Transfer System, and the Central Government Securities-Settlement System (a book-entry system). The efforts taken by the CBC to develop and oversee the payment system are then discussed.

Section 1 The Concept and Operation of the Payment System

1. *Payment Instruments and Payment Systems*

Currency issued by the central bank serves as a unit of account and the payment system facilitates the transfers of funds among different parties. Functions of the payment system include the delivery of payment instruments, the transmission of payment orders, and the transfer of funds across bank accounts to settle payments. Payments involving interbank fund transfers are settled through current accounts maintained at the central bank.

Payment instruments may be categorized into cash and non-cash forms. Currency plays a vital role in the payment system by performing multiple functions: it is legal tender that serves as a medium of exchange and a unit of account. According to the Bank for International Settlements (BIS), non-cash payment instruments include checks, debit cards, credit cards, credit transfers, direct debits, and both card-based and network-based electronic money.

Innovation in non-cash payment instruments in recent years has brought

significant changes both to the means of payment and to the payment system. Modern electronic payment systems not only facilitate transactions but also increase the efficiency of fund transfers by lowering transaction costs. The electronic payment system may be divided into large-value and small-value payment systems. A large-value payment system processes large-value transactions such as foreign exchange, currency, and securities transactions between banks, and fund transfers for government agencies or commercial transactions. A small-value payment system mainly processes retail payments such as those made via ATMs, credit cards and the Internet.

2. Major Payment Systems in Taiwan

Once a transaction is initiated, fund transfers follow right away. Fund transfers may flow from a customer's account to a bank's account, between two banks' accounts, or from a bank's account to the central bank. Final settlements of funds are completed at the central bank by adjusting the debits and credits entries to the balances of banks' reserve accounts. During this process, one class of payment systems integrates the functions of payment message delivery and exchange with interbank fund transfer settlements. A payment default in such systems could generate a system-wide effect so they are called "systemically important payment systems."

A systemically important payment system is vital to the smooth and effective functioning of the economy. The failure of such a system could trigger disruptions or send shocks across the financial system domestically or even internationally. In January 2001, the BIS released the *Core Principles for Systemically Important Payment Systems*, recommending ten core principles and four central bank responsibilities as general guidelines for promoting the integrity and efficiency of payment systems. Based on these principles, the CBC has made every effort to reconstruct domestic payment systems. The reforms that have been implemented include promoting a network-based interbank payment infrastructure, reconstructing the CBC Interbank Funds-Transfer System, and enhancing oversight of domestic interbank remittance and check clearing systems.

Taiwan's major payment systems include the Check Clearing System launched in March 1951, the FISC Nationwide Interbank Remittance System launched in August 1987, the CBC Interbank Funds-Transfer System established in May 1995, and the Central Government Securities-Settlement System, a book-entry system, launched in September 1997. All these payment systems make use of banks' reserve accounts held with the CBC for final settlements.

Section 2 The Check Clearing System

The use of checks and drafts is closely related to today's economic activities. Once a check is drawn and circulated, the right and obligation of payment come into effect for the financial institutions involved. To facilitate the exchange and clearing of checks among financial institutions, a centralized clearing-house system was established. With the increasing use of other non-cash instruments, especially electronic payments, the volume and value of transactions through checks have gradually declined since 2000. Nevertheless, as a credit record of checks affects the circulation and public acceptability of checks, check credit management is essential for the development of the payment system.

1. Implication and Operation of Check Clearing

In Taiwan, check clearing refers to the collection and exchange of due checks and drafts among financial institutions in regional clearinghouses. The resulting net balances coming from check clearing are eventually sent to the CBC or other local agent banks for final settlements. A well-functioning check clearing system helps promote the use of checks.

There used to be 16 clearinghouses in Taiwan. Each of the clearinghouses operated separately; their resources could not be managed effectively. In order to further develop the check clearing and interbank fund transfer functions and promote the security and efficiency of the payment system, under the CBC's guidance, the 16 clearinghouses were consolidated into a new independent legal entity named the Taiwan Clearing House (TCH) in November 2002. The former clearinghouses were reorganized as regional head offices or branch offices of the TCH.

Check clearing operations in Taiwan switched from manual to computer processing in response to the increased volume of check clearing. In 1985, an automated Magnetic Ink Character Recognition (MICR) system for check clearing was first introduced in the Taipei clearinghouse. Most of the other regional clearinghouses gradually adopted the MICR system for check clearing as well. In order to process check clearing more efficiently, a computerized dishonored check clearing system was launched in July 1999 at the Taipei clearinghouse to replace manual processing. The data of dishonored checks and their clearance have since been transferred to the Taipei clearing center through a proprietary network. Subsequently, other branches in western Taiwan also participated in this system.

To shorten the time of processing checks and to allow financial institutions to utilize settlement funds more efficiently, the TCH launched the Regional Clearing and Central Settlement System. Under this system, physical checks are cleared in regional branches first. The balances of each region are centrally combined in the Taipei Head Office. The balances will then be sent to the CBC for final settlements. This system commenced operation in July 2002 at the Taipei, Taichung and Kaohsiung clearing centers.

To facilitate fund flows arising from electronic commerce and to enhance the efficiency of the payment system, the CBC initiated the *Electronic Check Development Plan* in December 2000. The TCH was assigned to carry out this project. The first electronic check in Taiwan, also the first in Asia, was issued on September 29, 2003. An electronic check is a virtual check with an electronic signature instead of a hand written signature or physical seal. The scope of electronic bills of exchange covers electronic checks for designated beneficiaries, banks' promissory notes, as well as drafts of fund transfers for correspondence.

To safeguard the integrity of electronic check data, a Centralized Registration and Custody System was introduced. Electronic checks, issued by drawers with an electronic signature and then verified by paying banks, will be sent to the TCH for booking and custody, including their endorsement for transfer, pledge for loans and deposit for collection.

The benefits of using electronic checks as a payment instrument include: (1) the

problems associated with authenticity of seals, lost blank checks and stopping payments common with paper checks are eliminated, (2) electronic information, trading, payment and financing are integrated into a straight-through process, (3) real-time information regarding the check is accessible through an online inquiry system, (4) the use of electronic checks helps integrate firms' internal accounting and financial management, and (5) the use of electronic checks reduces cumbersome manual processing procedures and saves costs.

2. Credit Management

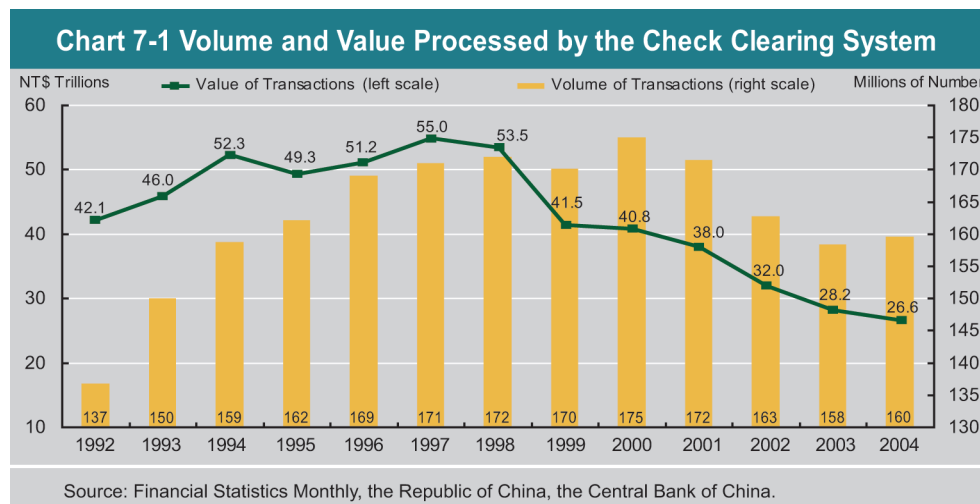
Regarding dishonored checks and rejected checking accounts, the clearinghouses, in addition to performing administrative procedures, maintain a nation-wide database of check credit so that the general public may, through the TCH or banks linked with the clearinghouses, make related inquiries. This has greatly contributed to the establishment of a sound environment for using checks.

Taiwan's check credit management is based on regulations stipulated by the CBC. To cope with the trend of financial liberalization and in accordance with the *Administrative Procedure Act*, the CBC revised the *Regulations on Check Credit Management*, which took effect on July 1, 2001. The revised regulations aim to provide accurate information on check credit records. Under the new rules, records of dishonored checks are available for inquiries for three years. Rejected accounts are suspended for three years but may be reactivated before the end of the refusal period, if holders of the rejected accounts clear up all the outstanding balances.

Table 7-1 Regulations on Check Credit Management Before and After Revision

	After Revision	Before Revision
Legal Basis	<ol style="list-style-type: none"> 1. Agreement Regarding Dishonored Checks and Rejected Checking Accounts Between Financial Institutions and the TCH 2. Agreement Regarding Checking Accounts between Financial Institutions and Depositors 	Administrative Orders
Rescind and Remark	Remarks of rejected checks may be removed upon application within three years. A detailed description of the remarks is available upon inquiry.	Records of rejected checks may be made void within seven business days upon application. Void records are not available for inquiry.
Rejected Checking Accounts	<ol style="list-style-type: none"> 1. An account with a record of three dishonored checks within one year is declared rejected by the TCH. 2. The account will be rejected for three years. 3. To reactivate the rejected account, the account holder should either wait for three years or clear up all the outstanding balances before the end of the refusal period. 	<ol style="list-style-type: none"> 1. An account with a record of three dishonored checks within one year is declared rejected by the TCH. 2. The period of refusal is three years for the above account and six years for an account with more than three dishonored checks within one year. If an account is rejected twice, it can no longer be reactivated. 3. To reactivate the rejected account, the account holder should wait until the end of the refusal period.
Inquiry Information	Inquiries can be made in writing, by phone, or via the Internet for individuals' or legal persons' historical checking credit records.	Inquiries can be made only in writing.

Source: Department of Banking, the Central Bank of China.



3. Automated Clearing House

In June 2002, the TCH was authorized by the CBC to offer automated clearing house (ACH) services to process routine and recurring payments. The ACH system is based on the nationwide check clearing network, through which companies or individuals (originators) authorize banks (Originating Financial Deposit Institutions, OFDIs) to make or collect payments for them. Each bank creates an electronic file of all the payments or collection instructions it has received from all of its customers and delivers it to the TCH for clearing. The individual debit and credit items are sorted in the TCH to create a separate output file for each bank, which is then delivered to the pertinent bank electronically. At the end of the business hours, the TCH delivers net clearing balances of ACH business to the CBC for final settlements. Since the TCH settles the ACH business and dishonored checks together on a net basis, banks can cut costs and utilize funds more effectively. Moreover, using only one bank account, customers are able to make or receive most of the payments involving more than one bank.

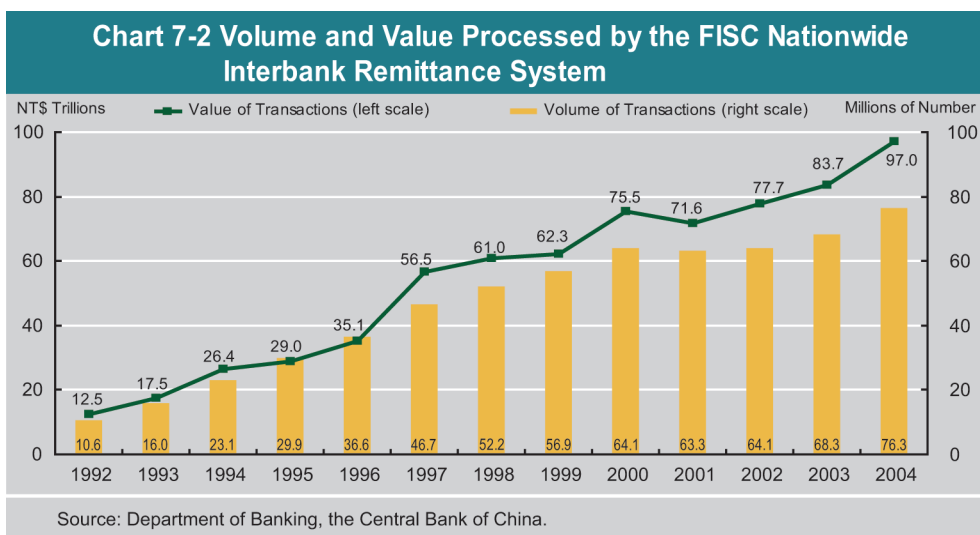
Section 3 The FISC Nationwide Interbank Remittance System

The Nationwide Interbank Remittance System operated by the Financial

Information Service Co. (FISC-NIRS) is a network between participating financial institutions and the FISC. This system allows businesses and the public to perform direct remittances as well as government agencies and financial institutions to conduct treasury and financial remittances. The FISC-NIRS started operation in August 1987.

The participating banks of the FISC-NIRS use funds deposited in the CBC's settlement accounts as payment guarantees. Regional financial institutions and credit departments of farmers' and fishermen's associations need to maintain settlement accounts with the Bank of Taiwan or the Cooperative Bank of Taiwan. The FISC-NIRS will not process interbank remittance instructions unless balances in settlement guarantee accounts are sufficient to cover the payments. In the case of insufficient payment guarantees, financial institutions must transfer funds to the settlement guarantee accounts from their current accounts held with the CBC, the Bank of Taiwan or the Cooperative Bank of Taiwan. At the end of each business day, most guarantee account balances will be transferred back to banks' current accounts, and the remaining balances will be used for the operations of 24-hour ATM services.

As of the end of 2004, a total of 391 financial institutions with 6,141 branches participated in the IRS. The number of payments made through the FISC-NIRS steadily increased from 2,000 recorded in 1987 to 76.35 million in 2004, while its value increased from NT\$15.5 billion to NT\$97,028 billion during the same period.



Section 4 The CBC Interbank Funds-Transfer System

1. Purposes and Functions

The CBC Interbank Funds-Transfer System (CIFS) commenced in May 1995 with an aim to enhance efficiency of fund transfers among its participants, including banks, investment and trust companies, and bills finance companies. The CIFS is an electronic network connecting the CBC with participating institutions. Through this network, participating institutions make large-value payments to adjust reserve account balances at the CBC, and payments associated with interbank call loans, foreign currency transactions, bill and bond transactions, and settlements of interbank net clearing balances from the TCH and FISC.

Since September 2002, the CIFS has been reconstructed into an overall Real-Time Gross Settlement (RTGS) system in order to conform to international best practice set by the BIS on large-value payment systems and to minimize settlement risks.

From participants' perspective, the RTGS system shortens the time lag between acceptance of a payment instruction and its actual settlement, and thus reduces credit risks. However, intraday liquidity needs may increase as a result and participants have to improve their liquidity management for cost considerations. From the viewpoint of payment system regulators, the RTGS system may reduce settlement risks, and enhance the safety and soundness of the whole payment system.

Keeping sufficient intraday liquidity in banks' settlement accounts with the CBC is key to the smooth functioning of the RTGS system. Banks' intraday liquidity may come from reserve account balances at the CBC, in-coming funds from other institutions or borrowings from the CBC or the call-loan market. To smooth payment flows passing through the new system, the CBC has adopted measures such as intraday overdrafts and throughput guidelines. Intraday overdrafts should be fully secured with eligible collateral, charged interest and repaid before 5:10 p.m. of the same business day. Regarding the throughput guidelines, the CBC specifies the percentages of total payments that banks and bills finance companies should settle at certain points of time during the day.

2. System Operations and Future Development

At the end of December 2004, 47 domestic banks, 35 foreign banks, 3 investment and trust companies, China Post Co., and 14 bills finance companies were participating in the CIFS. Financial institutions that maintain reserve or deposit accounts with the CBC may apply for participation in the CIFS. The main business functions of the CIFS are as follows:

(1) Interbank Fund Transfers

Through the CIFS, participating banks make large-value payments associated with interbank funding, call loans, foreign currency trading, bill and bond transactions. Once large-value payment instructions are accepted by the CIFS, they will be executed immediately and are irrevocable. In case of a shortfall in the balance of the settlement account, the payment instructions sent will be queued until the shortfall is replenished. At the end of each business day, all queued and un-executed payment instructions will be revoked.

(2) Payments and Receipts between the CBC and Financial Institutions

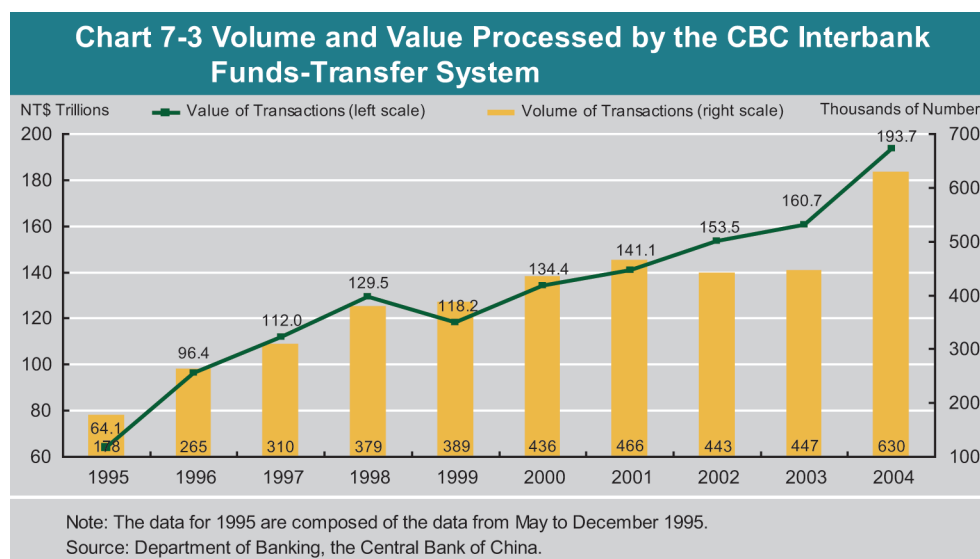
The CIFS may also process payments and receipts between financial institutions and the CBC, such as settlements relating to open market operations, the disbursement and repayment of short-term accommodations, appropriations of the Treasury, principal and interest payments of government bonds, as well as NT dollar settlements resulting from foreign exchange transactions.

(3) Check Clearing and FISC Nationwide Interbank Remittance System Settlements

During the business hours, the TCH may deliver net clearing balances of checks, dishonored checks, and ACH business in the Taipei, Taichung, and Kaohsiung areas to the CBC for final settlements. Settlements of checks will be executed at 3:30 p.m., while settlements of dishonored checks and ACH business will be executed at 5:10 p.m. The FISC-NIRS enables businesses, the public, financial institutions and the government to perform interbank

remittances. At the end of each business day, the FISC will notify the CBC of the resulting clearing balances of the participating banks of the FISC-NIRS. The CBC in turn will settle the payment obligations among these banks by using the CIFS to adjust the positions of their settlement accounts held with the CBC.

Since the commencement of the CIFS, the volume and value of transactions processed by the CIFS have gradually increased over the years. In 2004, 629,930 entries with a total value of NT\$193.7 trillion were processed by the CIFS, compared to 178,000 entries with a total value of NT\$64.1 trillion recorded in 1995.



Section 5 The Central Government Securities-Settlement System

Taiwan's central government securities, including government bonds and Treasury bills, are all issued in book-entry form instead of physical form. Under the current system, the issuance, transfers, redemption, and interest and principal payments of central government securities are electronically registered and processed via the network between each clearing bank and the CBC. The Ministry of Finance (MOF) began to handle the issuance and redemption of government bonds in book-entry form in September 1997 and Treasury bills in

October 2001.

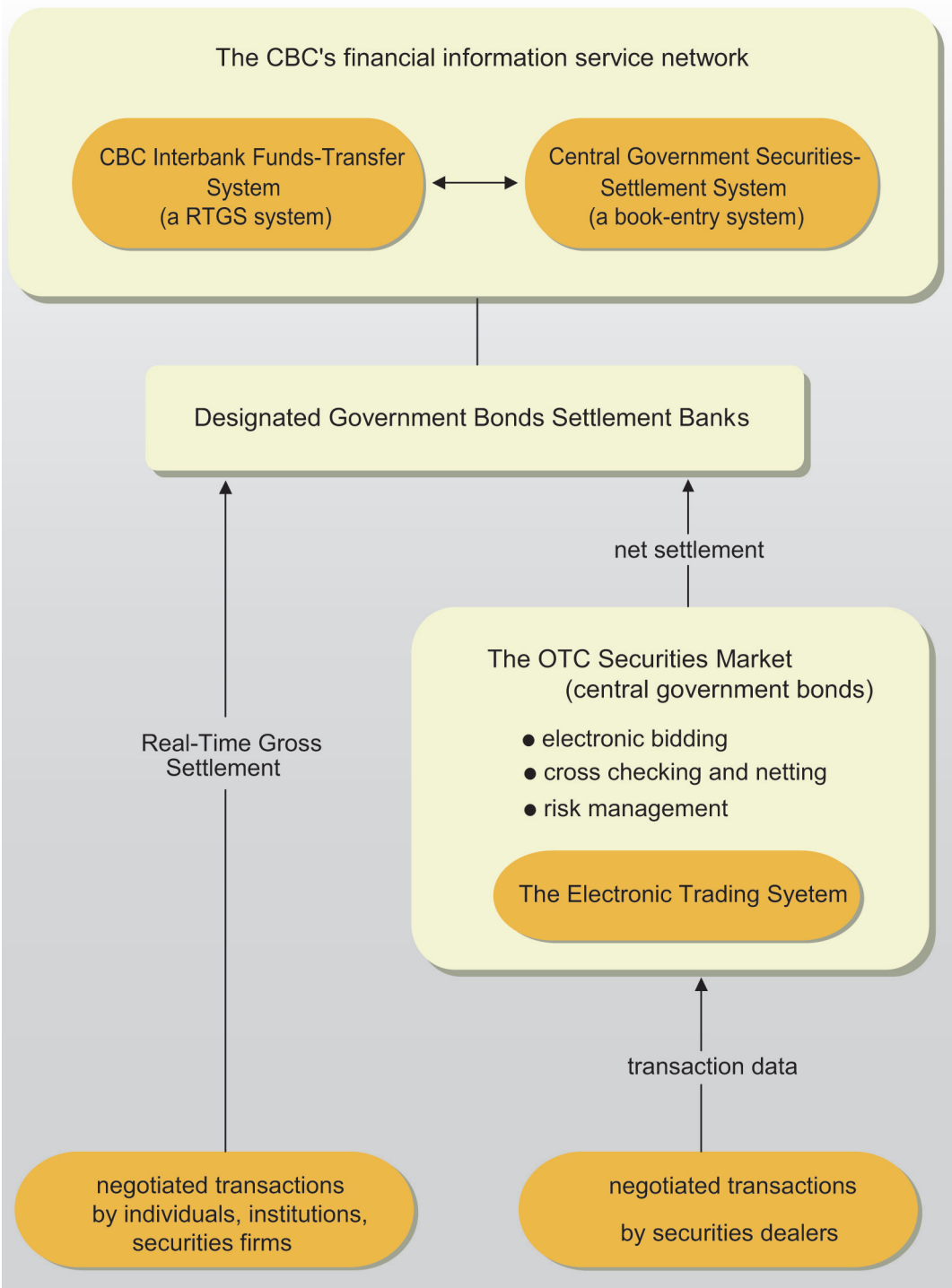
The Central Government Securities-Settlement System (CGSS) established a multi-tiered account structure to keep the records of the obligations and rights of government securities holders. The Department of the Treasury and the Department of Banking of the CBC as well as the clearing banks consigned by the CBC all serve as registration institutions of central government securities. Among them, the clearing banks deal with securities registration, fund transfers, and payments of principal and interest for their own accounts and customers' accounts. The Department of the Treasury carries out the aggregate registration of all central government securities, and handles registration of pledge or guarantee by government securities for central government activities. The Department of Banking handles securities registration relating to its open market operations, accepting government bonds as bank reserves and offering them as short-term financing facilities.

Individuals and organizations are required to open a securities account and a deposit account at a clearing bank to carry out securities registration and fund transfers; a clearing bank should open a securities account and a deposit account with the Department of the Treasury of the CBC.

The system has operated smoothly since its inception. The registration of central government securities is handled by 20 clearing banks and their 1,568 plus branches. The monthly average face value of securities registered in 2004 increased to NT\$6,318 billion from NT\$1,400 billion recorded in 1998. Generally, each transfer of securities or funds can be completed real time. The primary benefits of the book-entry system include the reduction of handling and settlement risks and the enhancement of market liquidity for government securities. The computerized network for transactions is similar to payment systems in major industrialized countries; it provides a solid platform for the internationalization of domestic bond markets.

Two customers trading central government securities within the same clearing bank may choose to transfer the securities only or to deliver the securities versus payment. However, this option is currently unavailable for transactions between two customers coming from different clearing banks. The CBC is actively developing the Delivery Versus Payment (DVP) mechanism across clearing banks so that transactions involving two different clearing banks can be settled based on a DVP basis to reduce settlement risk.

Chart 7-4 Delivery Flow Chart of the Central Government Securities-Settlement System



Purposes and Functions (1992-2004)