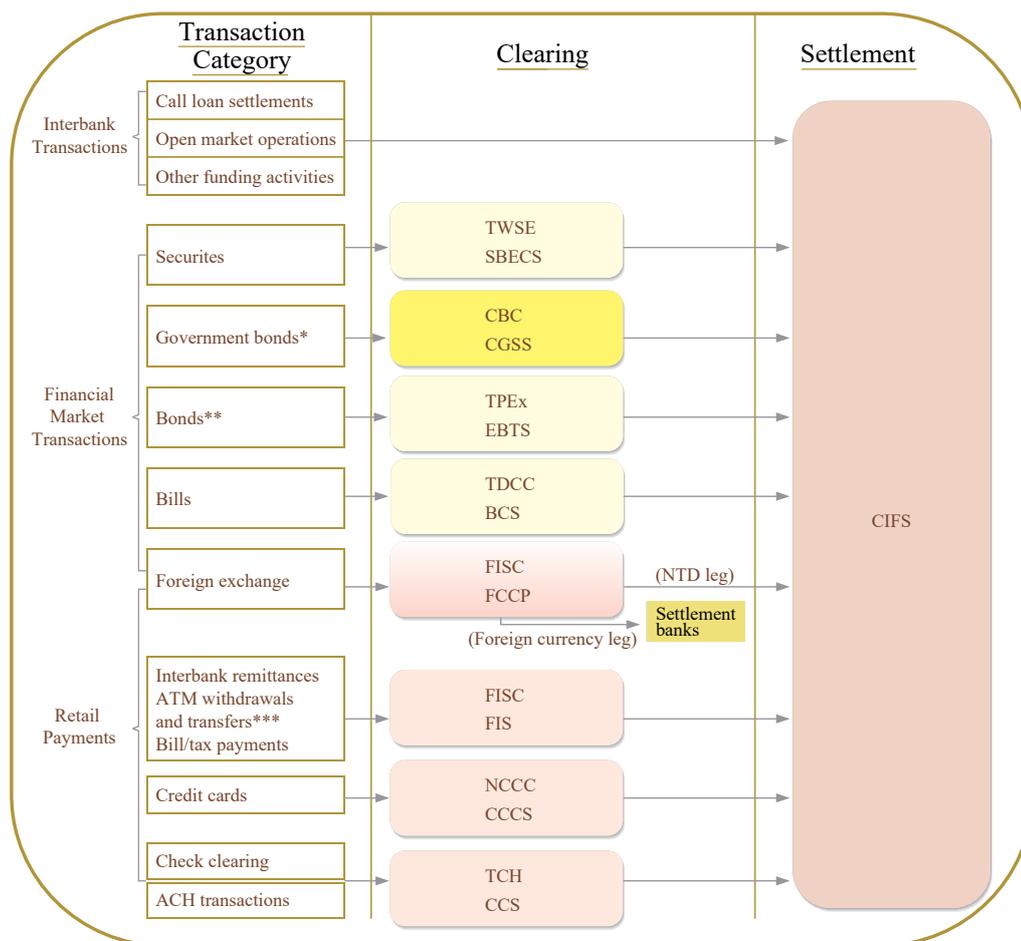


## 4. Payment and Settlement Systems

The Bank plays a crucial role in the functioning of Taiwan's payment and settlement systems, and operates the CBC Interbank Funds Transfer System (CIFS) and the Central Government Securities Settlement System (CGSS).

The CIFS serves as the hub of Taiwan's payment and settlement systems, linking the interbank clearing systems operated by the Financial Information Service Co., Ltd. (FISC), the Taiwan Clearing House (TCH), the National Credit Card Center of R.O.C. (NCCC), the Taiwan Depository and Clearing Corporation (TDCC), the TPEX, and the TWSE, as well as the CGSS, together to construct a comprehensive system.

**CIFS Settlement Services**



Notes: \* Including DVP settlements for interbank transactions of central government bonds and treasury bills.  
 \*\* Including netting settlements for outright trades of government bonds, corporate bonds, and bank debentures.  
 \*\*\* Including those through online and mobile banking.  
 Source: CBC.

In addition, the Bank monitors major payment systems based on the *Principles for Financial Market Infrastructures* released by the Bank for International Settlements (BIS) to ensure sound operation of these systems and to promote stability of the financial system.

## Operation of Payment and Settlement Systems

### (1) Funds Transfers via the CIFS

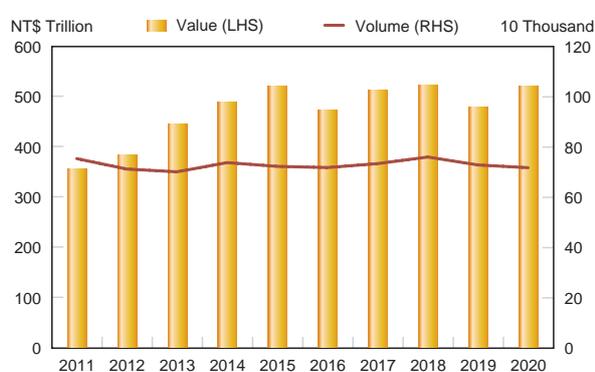
As a large-value electronic funds transfer system, the CIFS not only deals with interbank funding, open market operations, and funds settlements in financial markets, but also provides interbank final settlement services for each clearing institution.

At the end of 2020, there were 82 participants of the CIFS, including 67 banks, eight bills finance companies, Chunghwa Post, and six clearing institutions, namely the FISC, the TCH, the TDCC, the TWSE, the TPEX, and the NCCC. In the year 2020, the number of transactions via the CIFS was 724,189, and the amount of funds transferred totaled NT\$505 trillion. Meanwhile, the daily average number of transactions via the CIFS was 2,897, decreasing by 2.26% over the previous year, whereas the daily average amount of funds transferred was NT\$2,019 billion, increasing by 3.36% from a year before<sup>8</sup>.

### (2) Transactions via the CGSS

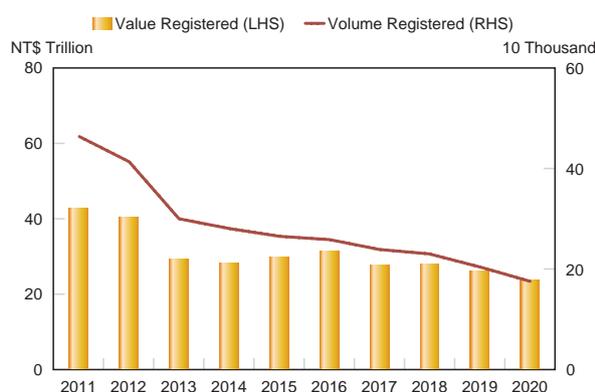
Established in September 1997, the CGSS is a system for issuance, transfer, redemption, and interest payment of book-entry central government securities. Since its inception, central government bonds have been issued in book-entry form. In October 2001, treasury bills were included in this system and have been issued in book-entry form ever since.

Transaction Value and Volume of the CIFS



Source: Department of Banking, CBC.

Transaction Value and Volume of the CGSS



Source: Department of Treasury, CBC.

<sup>8</sup> The average transaction volume decreased primarily owing to declines in call loan market transactions and securities market transactions. On the other hand, the average transaction value increased largely because of rises in interbank funds transfers and transactions in certificates of deposit.

Since April 2008, when the CGSS linked up with the CIFS, fund settlements, principal redemptions, and interest payments have been handled through the CIFS using a DVP mode. The DVP mode, promoted by the BIS, is an arrangement in a securities settlement system to ensure that securities delivery occurs at the same time as the funds transfer, effectively eliminating potential principal risk during the transaction process.

As of the end of 2020, there were 18 clearing banks with 1,676 branches that handled the registration of central government securities transfers. In 2020, this system processed 174,757 transfers with a total amount of NT\$23.7 trillion.

### **Oversight of Payment and Settlement Systems**

To ensure sound operation of domestic payment and settlement systems and maintain their safety and efficiency, the Bank conducted the following oversight activities in 2020:

#### **(1) Monitoring the Operation of the Large-Value Payment Systems**

In 2020, the Bank continued to monitor the operation of the large-value payment systems. During the year, 16 applications for CIFS operation time extensions were filed by participating institutions because of system malfunctions or other contingencies. The Bank required these institutions to submit improvement reports.

#### **(2) Requiring Payment Institutions to Submit Information on Electronic Payment Business**

Payment system operators and electronic payment service providers were required by the Bank to submit information about their operations and activities with regard to electronic payments on a regular basis. Furthermore, the Bank kept close watch on the development of financial technology (fintech) and innovations in the payment industry.

#### **(3) Supervising Contingency Drills Performed by Clearing Institutions**

During 2020, the Bank supervised clearing institutions conducting testing of business continuity plans and remote backup operations in case of emergency. In November 2020, the Bank, in collaboration with participants of the CIFS, performed system-wide testing of the operating procedures in response to disruptions to system network connectivity.

#### **(4) Performing Backup Drills with Clearing Banks**

Since 2019, the Bank has supervised all clearing banks performing backup drills in the event of malfunction or line interruption of a CGSS participant's mainframe system annually. In December 2020, this drill was conducted successfully with 18 clearing banks.

#### (5) Organizing Conferences to Enhance Payment System Operation

The Bank invited the FSC and clearing institutions to jointly hold two conferences on “Promoting Sound Operation of the Payment Systems.” The conferences were convened separately by type of clearing institution. The May conference held for securities clearing institutions including the TDCC, the TPEX, and the TWSE was suspended because of the COVID-19 pandemic and replaced with report submission by the aforesaid institutions. The other meeting was held as scheduled in November and attended by payment clearing institutions including the FISC, the TCH, and the NCCC. The Bank urged clearing institutions to enhance business continuity planning, backup drills, and contingency reporting in response to the pandemic.

#### (6) Strengthening Liquidity Management of Internet-Only Banks

With the launch of internet-only banking, the Bank asked the FISC to help ensure the smooth operation of interbank settlements by urging internet-only banks to maintain sufficient funds in the Interbank Funds Transfer Guarantee Special Account<sup>9</sup> opened with the Bank and by monitoring in real time the liquidity conditions in the Special Account.

### **Establishing Precautionary Measures for the Pandemic to Ensure Continuity of Payment and Settlement Services**

To cope with the impacts of the COVID-19 pandemic, the Bank promulgated guidance for participating institutions of the CIFS and of the online network system for the Bank's open market operations in March 2020. The guidance included deploying key operational staff to work at a second (or more) office and strengthening remote backup systems and operational measures. Meanwhile, the Bank stipulated precautions for the CGSS operations, which were provided as guidance to ensure that all CGSS participants maintain business continuity by means of off-site working and other measures. As a whole, the domestic payment and settlement systems operated smoothly throughout the year without being disrupted by the pandemic.

### **Assisting in Providing Sound Mobile Payment Infrastructure for Financial Institutions**

To foster the development of the digital economy, the Bank required the FISC to reinforce mobile payment infrastructure and advance information security to be in line with international standards and rules. To enhance user experience in mobile payments, the FISC collaborated with banks to introduce a new funds transfer service in September 2020, allowing users to transfer funds based on a payee's registered mobile phone number instead of a bank account number. As of the end of 2020, 13 banks had launched the service, and other banks may follow suit subsequently.

<sup>9</sup> Authorized financial institutions may jointly open an Interbank Funds Transfer Guarantee Special Account with the Bank. The funds in the Special Account serve as guarantee for clearing individual interbank payments.

### **Initiating Research on a Retail CBDC**

To explore the practicability of using distributed ledger technology (DLT) for the issuance of a CBDC, the Bank's CBDC research team cooperated with academia and completed a technical research report on the feasibility of a wholesale CBDC in June 2020. The results showed that DLT does not offer a better option than current centralized systems in terms of privacy protection, security, and performance of transaction processing. The Bank then moved on to the second phase with a proof-of-concept study on a general purpose CBDC in September that would run for two years with a rolling review depending on the progress and international trends.