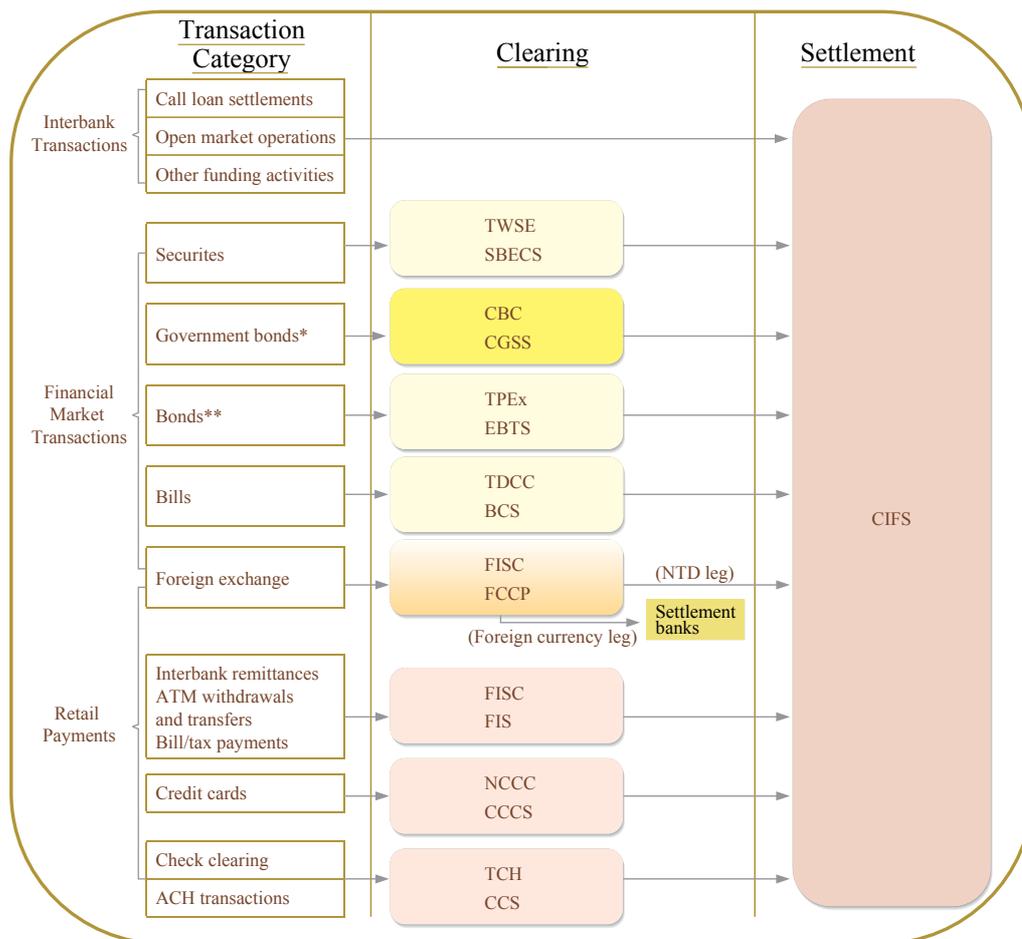


4. Payment and Settlement Systems

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 Taipei Exchange (TPEX), and the Taiwan Stock Exchange Corporation (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 financial bonds.

Source: CBC.

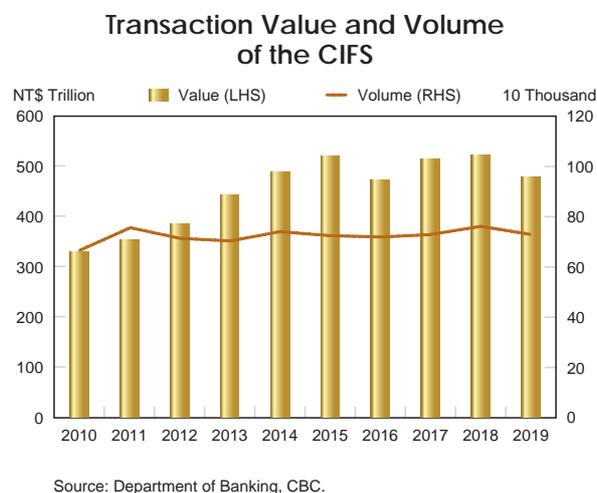
In addition, the Bank monitors major payment systems based on the *Principles for Financial Market Infrastructures* released by the Bank for International Settlements (BIS) to ensure sound operation of these systems and to promote stability of the financial system.

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.

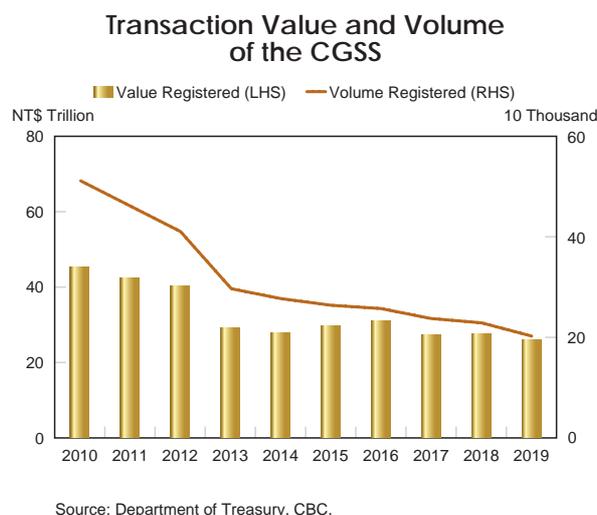
At the end of 2019, participants of the CIFS included 66 banks, eight bills finance companies, Chunghwa Post, and six clearing institutions such as the FISC, the TCH, the TDCC, the TWSE, the TPEX, and the NCCC. In the year 2019, the number of transactions via the CIFS was 732,046, and the amount of funds transferred totaled NT\$482 trillion. Meanwhile, the daily average number of transactions via the CIFS was 2,964 and the daily average amount of funds transferred was NT\$1,953.8 billion, decreasing by 3.70% and 7.65% from the previous year, respectively.



(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.

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 delivery-versus-payment (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 2019, there were 18 clearing banks with 1,676 branches that handled the registration of central government securities transfers. In 2019, this system processed 204,115 transfers with a total amount of NT\$26.3 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 2019:

(1) Monitoring the Operation of Payment and Settlement Systems

In 2019, the Bank continued to monitor the operation of the payment and settlement systems. During the year, 14 applications for the 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 through meetings with relevant parties to reinforce communication.

(3) Supervising Contingency Drills Performed by Clearing Institutions

During 2019, the Bank supervised clearing institutions conducting testing of business continuity plans and remote backup operations in case of emergency. Furthermore, the Bank, in collaboration with participants of the CIFS, performed a dry run of the operating procedures in the scenario that disruptions to system network connectivity occur. Based on the outcomes, the Bank reviewed and updated relevant procedures, which were later provided as guidance for participating institutions.

(4) Organizing Conferences to Enhance Payment System Operation

The Bank invited the Financial Supervisory Commission (FSC) and clearing institutions to jointly hold two conferences on "Promoting Sound Operation of the Payment Systems," through which the

Bank urged clearing institutions to strengthen risk management of cybersecurity and enhance the use of big data in innovative operations. The conferences were convened separately by type of business. The conference in May was held for securities clearing institutions such as the TDCC, the TPEX, and the TWSE, while the one in November was attended by payment clearing institutions including the FISC, the TCH, and the NCCC.

(5) Requiring the TCH to Disclose Financial Information

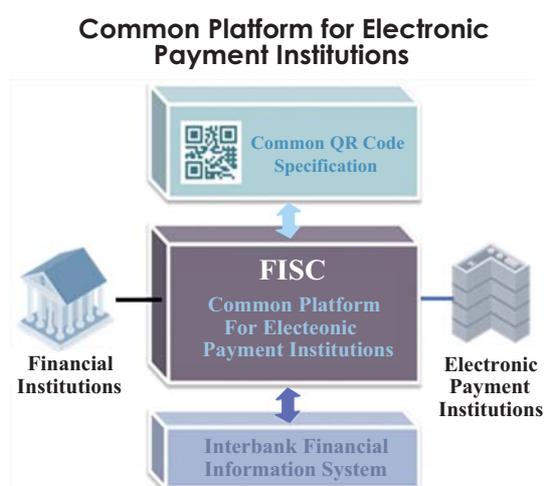
In line with the commencement of the *Foundations Act*, the Bank supervised the TCH to revise related rules and regulations, and required the TCH to disclose financial statements on its website pursuant to Article 25 of the Act. Related information such as the TCH's budget and final accounts as well as the Bank's on-site audit results was also published in the information disclosure section on the Bank's Chinese-language website.

Supporting the Establishment of the "Common Platform for Electronic Payment Institutions" to Strengthen Retail Payment Infrastructure

To achieve interoperability across multiple mobile payment services, many countries started to roll out their own standardized QR code specifications. In Taiwan, the FISC collaborated with banks and developed the "Taiwan Pay Common QR Code Payment Specification" (hereafter referred to as the common QR code specification) at the end of 2017.

With the development of the common QR code specification, the Bank instructed the FISC to establish the "Common Platform for Electronic Payment Institutions" to incorporate electronic payment institutions (EPs) into the direct participants of the interbank financial information system. Through this platform, the funds can be transferred between EPs and between banks and EPs. This would help facilitate funds settlements at higher speed and enhance the convenience of mobile payment services for vendors and consumers.

The FISC has completed the initial development of the platform and offered EPs to apply for trials in October 2019. In the meantime, to coordinate with the aforementioned efforts, the competent authority, the FSC, is working on the amendments to the *Act Governing Electronic Payment Institutions*. Once these amendments come into force, the platform will officially start operating.



Source: Department of Banking, CBC.

Conducting Research on the Central Bank Digital Currency

Given that existing domestic payment market infrastructures have been operating efficiently and smoothly, there is no urgent need to issue a central bank digital currency (CBDC) in Taiwan at the moment. However, given the evolving trends in the digital economy, it is imperative for central banks to closely monitor the developments of CBDCs and the applicability of related technologies. Therefore, the Bank organized a research team in May 2019 to investigate the ongoing development of technologies regarding CBDCs, blockchain, and electronic payments.

As the issuance of a CBDC involves complicated issues and requires careful consideration, the Bank's research team has been cooperating with academics and industry specialists to study the technologies and explore the possibility for issuing a wholesale CBDC. In the future, depending on the aforesaid research results, the team might proceed to research on a general purpose CBDC.